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NEW ENGLAND SURGICAL SOCIETY

BLEEDING DUODENAL ULCER*

BY ARTHUR W. ALLEN, M.D.†

ALTHOUGH there is still considerable difference of opinion throughout the world, regarding the treatment of duodenal ulcer these controversies are based on factors relevant to particular districts. In New England and certain other parts of the United States, we have come to look upon the problem on the whole as one that is primarily medical. This attitude has been the natural reaction to the disappointing results of routine surgical procedures and the increased interest in the details of diet and the general management of these cases by the internist. However, a considerable number of duodenal ulcer patients become the problem of the surgeon in spite of or for the lack of adequate medical care. These may be loosely divided into the mechanical group of obstructing, perforated and severe bleeding ulcers, and the small group of uncoöperative individuals who remain incapacitated from their lesion either through lack of intelligence or because of environment.

During the ten year period from 1922 to 1931 inclusive, there have been 1754 cases of duodenal ulcer treated in the Massachusetts General Hospital. Of these, 459 have been subjected to surgical treatment. All, save those who have first applied for treatment as surgical emergencies, have been under the care of the Gastrointestinal Clinic. The Gastrointestinal Clinic was organized in 1923 by Drs. Chester M. Jones and Monroe A. McIver. On all doubtful cases there has been a close liaison between the internist and the surgeon in the handling of the entire group. Ten hundred and seventeen were treated in the wards. All of these were proved by x-ray, operation or autopsy. Of these, 387 or 39 per cent gave definite evidence of bleeding in amounts determinable by macroscopic methods. Seven hundred and sixty-two were treated in the Gastrointestinal Clinic of the Out Patient Department alone, the diagnosis being confirmed by x-ray. Of these, only 52 of the proved cases gave a definite history of bleeding. Inasmuch as none of the out patient cases bled severely enough to warrant hospitalization, they will not be considered further in this study.

*Read at the meeting of the New England Surgical Society at Hartford, Conn., September 30, 1932.

†Allen—Associate Surgeon, Massachusetts General Hospital. For record and address of author see "This Week's Issue," page 267.

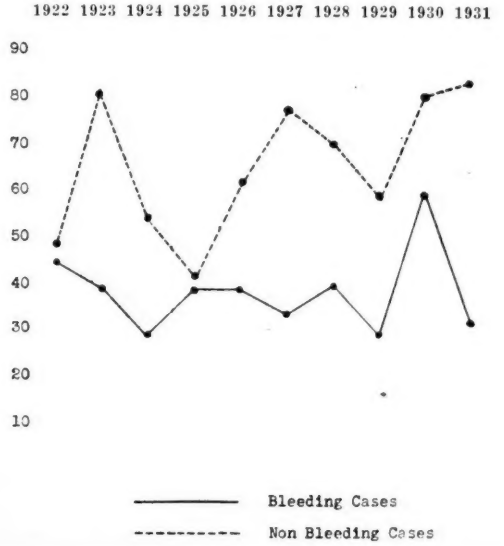
TABLE I

DUODENAL ULCERS WARD CASES
1922-1931 INCLUSIVE

		No. cases	Ratio
Non-bleeding	Males	521	4 to 1
	Females	125	
Bleeding	Males	310	5 to 1
	Females	61	
	Total	1017	
Average Age	Males		43.5 years
	Females		46.3 years
Average Duration of Symptoms	Males		6.4 years
	Females		7.8 years

TABLE II

TOTAL CASES OF DUODENAL ULCER TREATED IN HOUSE



BLEEDING ULCERS

Bleeding duodenal ulcers have been looked upon generally as potential surgical lesions, although in the minds of most authorities, this opinion has had reference to those cases with severe blood loss. There are many cases of minor bleeding, a considerable number of moderate bleeding, and some of severe hemorrhage that respond well to the medical routine of rest,

diet, etc. However, there are questions constantly arising concerning bleeding ulcers, such as: When is a bleeding ulcer surgical? Should there be a blood transfusion? Should a severe bleeding ulcer be admitted to the medical or to the surgical ward? If surgery is decided upon, what type of operation should be done, etc.? In an effort to clarify these disputed points in my own mind, I have studied the records of such cases coming to our hospital in the past ten years. That definite answers to these questions are lacking will be obvious, but certain suggestive evidence that may be helpful is brought out by this analysis.

Of the 371 ward cases with bleeding ulcers, 142 were classified as mild, inasmuch as the amount of their blood loss was negligible. These had only a small amount of occult blood in their vomitus, or occasional tarry stools. Their bleeding did not influence treatment or at least did not require increased hospital stay, transfusion or any specific measures.

One hundred and ten were grouped as moderate bleeders. These had sufficient blood loss at a time to show fresh blood in the vomitus, large quantities of occult blood or repeated tarry stools, but did not bleed enough to cause prostration of any duration or a lowering of the red blood count below three million or a drop in hemoglobin below 70%. These on the whole required a longer convalescence after attacks than the non bleeding ulcer, and those in the mild bleeding groups. Their diets were more restricted in the earlier stages of treatment and they were warned of the possibility of further and more severe hemorrhage. Many of these cases after repeated moderate bleeding attacks were advised to have surgical treatment.

TABLE III

BLEEDING DUODENAL ULCERS

Hematemesis only	84	22.6%
Melena only	142	38.3%
Both hematemesis and melena	145	39.1%
	371	100.0%

SEVERE BLEEDING ULCERS

One hundred and nineteen were classified as severe bleeding ulcers and these refer to massive blood loss either gradual (36 cases) or sudden (83 cases), either a sufficient hemorrhage to cause prostration, or marked secondary anemia. This group represents the most interesting from a surgical point of view, for in those who have sudden massive hemorrhages we are confronted with one of the most serious of all surgical problems. That many of these severe cases recover from their hemorrhage without operative interference, is well known. Also, the interval between hemorrhages may be many years. That some ulcer cases may have symptoms for a great many years before they bleed, is also obvious. It is apparent from the study of these severe cases that certain ones have eroded a large vessel, usually the pancreatico-duodenal artery, and lose large quantities of blood rapidly, becoming immediate surgical emergencies. These have frequent repeated hematemesis, melena or even bright blood by rectum with rapid fall in blood pressure, and shock. Without transfusion and surgery, death from hemorrhage may occur. The mortality with operation is appalling, but with well-directed efforts many of these patients should be saved. It seems that severe massive hemorrhage is less prone to produce a condition that requires emergency surgery other than transfusion at the time of the first attack of bleeding. Those who have bled severely on one or more occasions regardless of the time interval between hemorrhages, are much less likely to respond to opiates, rest, and transfusion, but frequently continue to bleed. Apparently the more chronic the ulcer, the less elasticity in the eroded vessel and surrounding structures exists, consequently the less likelihood for spontaneous cessation of bleeding. This makes it essential to work out if possible a satisfactory technique of handling this type of case when it arises. The dictum of operation following the second transfusion in the patient who continues to bleed rapidly, is at present the logical course to pursue. The occasion, however, is not common and the experience in this emergency of the average surgeon is necessarily limited, therefore it is well to plan ahead what procedure to adopt, as the patients not infrequently die from hemorrhage during the attempt to secure the bleeding vessels, and even if they survive the operation and the bleeding is checked, they are easy victims of pneumonia and infection in their depleted state.

Although it was not intended to include in the scope of this paper surgical procedures, it may not be irrelevant to call attention to the type of ulcer case that is most likely to bleed to death in spite of all efforts, and discuss briefly operations directed to relieve them. These are ulcers situated over a fairly large vessel, usually the pancreatico-duodenal artery. An erosion takes place in this vessel which will admit an ordinary probe. The base of the ulcer is pancreatic tissue and the edges are firmly indurated. The vessel lies taut across this area, like a string on a banjo. It becomes necessary at operation to expose the ulcer by opening the duodenum and attacking the vessel directly or transecting the distal portion of the stomach, lifting it up and securing the vessels entering the ulcer as the distal portion of the stomach and ulcer-bearing area of the duodenum is resected. Although this latter procedure seems radical in this emergency, it is probably the one of choice inasmuch as efforts to place sutures

that will hold through the base of such an ulcer even under direct vision, are prone to fail in stopping the hemorrhage before the patient succumbs. Cauterization of a vessel of this size will likely fail to bring about permanent cessation of bleeding. The mortality is so high in this small group of patients that every case of severe massive hemorrhage from ulcer that recovers from the attack should be seriously considered, as to the advisability of a radical operation in a quiescent stage. There is a 40 per cent chance of other attacks of bleeding.

SEVERE BLEEDING DUODENAL ULCERS

Gradual hemorrhage	36	
Sudden hemorrhage	83	119 cases

In this group—

71 bled once
24 bled twice
24 bled three or more times

THE QUESTION OF TRANSFUSION

There has been considerable dispute among authorities as to the advisability of blood transfusion in the severe massive hemorrhage cases, those arguing against transfusion offering as their evidence that if the blood pressure falls to a low level, bleeding will stop and the patient gradually recover. If transfusion is used, it simply elevates the blood pressure and causes the hemorrhage to begin all over again. That there is some evidence to support this view is borne out in eleven cases in this series. (Table IV.) On the other hand, 66 cases in this group were transfused with benefit to the patient and without creating new hemorrhage. In this regard we must also face the fact that four severe massive hemorrhage cases (Table V) in this group died from hemorrhage without transfusion, either because the physician directing the case feared the effect of transfusion more than the state of shock, or delayed transfusion too long so that the patient died before it could be accomplished. In support of the non transfusionists, we must admit that 29 cases of severe hemorrhage recovered without transfusion. If blood transfusion is given slowly, the blood pressure does not need to be elevated suddenly and should not be withheld on this basis. Also, one must not allow the blood pressure to fall below 70 systolic before giving blood, as death may take place so quickly below this level that time is not allowed for transfusion. The surgeon must be ready in such a case to operate immediately following a transfusion that has bled out and be prepared to transfuse again before and after the operation. If this is done and the operation is successful in stopping the hemorrhage, some of these patients will recover.

TABLE IV

RECURRENT OR CONTINUED BLEEDING POSSIBLY AGGRAVATED BY TRANSFUSION

One case recovered having bled out first transfusion in 24 hours. Transfused again without further bleeding. First hemorrhage.
One case recovered having bled gradually after first transfusion. Was transfused again seven days later without further bleeding. Third hemorrhage.
One case died of hemorrhage two and a half hours after transfusion. No operation. Second hemorrhage.
One case died having bled gradually 36 hours after first transfusion. No operation. First hemorrhage.
One case died 45 days after resection of colon for carcinoma—from sudden bleeding of duodenal ulcer. Three transfusions. First hemorrhage.
One case died five days postop. Billroth ii for massive bleeding of bronchopneumonia. Had bled after transfusion. Was transfused, operated upon, and transfused again. Third hemorrhage.
One case died on operating table (transection of stomach) having bled out first transfusion in three hours. Second hemorrhage.
One case died 24 hours after Billroth ii of shock having bled out transfusion twice in 24 hours. Two transfusions postop. Second hemorrhage.
One case died 24 hours after Billroth ii having had five transfusions in five days preop. Second hemorrhage.
One case died on operating table. Had two transfusions in 24 hours preop. First hemorrhage.
One case died three days postop. of peritonitis and continued bleeding, having had three transfusions before and three after operation. First hemorrhage.

TABLE V

FATAL CASES DYING OF HEMORRHAGE WITHOUT TRANSFUSION

One case in hospital 13 days before death.
One case in hospital 10 days before death.
One case in hospital 7 days before death.
One case in hospital 12 hours before death.

SUMMARY AND CONCLUSIONS

1. In 1017 duodenal ulcer patients treated in the wards of the Massachusetts General Hospital from 1922-1931 inclusive, 119 were classified as severe bleeding. In 83 cases, the bleeding was sudden and massive, 17 of whom died of hemorrhage, four of these without transfusion or operation.
2. The probability of spontaneous cessation of bleeding in the severe group diminishes with each subsequent attack.
3. Operation is advocated during a quiescent period after the second incidence of massive hemorrhage regardless of the time interval between. It should be considered after recovery from the first incidence.
4. Transfusion is advocated in severe hemorrhage, as it aids in checking the bleeding far more often than it starts the patient bleeding again. In case the latter happens, the patient is no worse off and immediate operation is indicated.

DISCUSSION

DR. DAVID CHEEVER, Boston, Mass.: I merely wish to ask Dr. Allen in closing to say what he thinks of simple gastrojejunostomy as operative relief for these cases, which it is my impression is the operation of choice in many clinics and I think in the Mayo Clinic.

DR. PHILEMON E. TRUESDALE, Fall River, Mass.: *Mr. President*—It seems to me there is one word that can be used appropriately in dealing with cases of this type and that is "caution"; caution in making a careful study of the particular case; caution in the approach; caution in the selection of the operative procedure; caution in execution of the operation, and caution in the after treatment.

In a series of fifty-five pylorectomies for ulcer, I have lost three patients. Two of the three had ulcer on the posterior side of the pyloric region. While pylorectomy would seem to be the operation indicated for ulcer on the posterior wall of the duodenum, it incurs a most dangerous procedure because the ulcer is almost invariably adherent to the head of the pancreas. The first portion of the duodenum is considerably shortened by the inflammatory process; consequently, the common duct is brought closer to the pylorus, and the entire picture is one that should lead the surgeon to consider carefully the liability of failure. I heartily agree with Dr. Cheever that the operation of choice is a gastrojejunostomy.

DR. EDWARD L. YOUNG, JR., Boston, Mass.: I wish to emphasize the very severe type of case where a main artery itself is broken wide open. The person I have in mind is in advanced years, is definitely arteriosclerotic, has had a long period of symptoms, and has had previous bleeding. These cases are the most desperate imaginable. At autopsy a large probe will go through the artery and it is obvious from that alone that palliative treatment will not be sufficient. I believe that immediate transfusion and an attempt at stopping the hemorrhage by transsecting the pylorus and getting at the artery from behind is the best approach. Certainly it is hopeless to go at it through the duodenum. It is an interesting fact which we learned somewhat by accident two or three years ago that a partial operation, leaving the stomach entirely unconnected with the bowel, can be done. The patient can be kept alive with intravenous, rectal, and subcutaneous fluid, saline, and glucose. If at the end of a week to ten days he is by the bleeding and has bucked up, a gastroenterostomy can be done with comparative ease.

DR. FRANK H. LAHEY, Boston, Mass.: I would like to add a few words in the discussion of this paper, based upon our experience with these bleeding ulcers which are very difficult cases.

Dr. Jordan and Dr. Kiefer of the Gastro-Enterological Department of the Clinic, published on May fourth, 1931, a paper read before the American Gastro-Enterological Society in Atlantic City, entitled: "Factors Influencing the Prognosis in the Medical Treatment of Duodenal Ulcer," and in this paper are some interesting figures having to do with the question of the value of a past history of bleeding in ulcer cases as it relates to whether they would be cured under non-surgical measures.

A history of hematemesis or of blood in the stools was present in fifteen per cent of all of the cases which were found to be successful at the end of a five-year follow-up investigation study, and in this same group in those cases which were found to be unsuccessful, a past history of the vomiting of blood or of passage of blood was present in fifty-five per cent of the cases. In the cases studied under a five-year follow-up plan, of those which were failures under medical treatment because of recurrent pain, twenty-six per cent gave a history of past hemorrhages, while among those which failed under medical treatment because of recurrent hemorrhage, seventy-seven per cent had a history of hemorrhage either in the form of vomited blood or blood passed in the stools before coming to us. A history of two or more previous hemorrhages was obtained as follows in the successful cases, that is, in the cases successfully treated by non-operative measures as proved at the end of the five-year follow-up, one and six-tenths per cent; in cases unsuccessful because of pain, two and six-tenths per cent; in cases unsuccessful because of hemorrhage, forty-six per cent. In three hundred and eighty-six cases of duodenal ulcer, a history of gross hemorrhage was present in nineteen and four-tenths per cent, including four and four-tenths per cent who had had two or more hemorrhages. The importance of this much higher incidence of hemorrhage in cases which eventually prove unsuccessful indicates how valuable this point is in prognosticating as to whether patients with duodenal ulcers will be successes or failures under medical treatment.

The importance of two or more hemorrhages is most strikingly brought out in this respect. In the three hundred and eighty-six cases of duodenal ulcer studied, fifty-eight cases gave a history of one hemorrhage. Of these, sixteen, or twenty-seven per cent, experienced a relapse of their symptoms within three years. Of the seventeen cases which had had more than one hemorrhage before coming for treatment, fourteen, or eighty-two per cent, had a recurrence of symptoms while under medical measures.

We have always been interested to know what the real danger of hemorrhage is as relates to mortality in patients with bleeding ulcers; therefore, the following figures will be of interest and of value to you. In a group of one thousand

four hundred and eighty-nine ulcers treated in the Clinic, four have died of hemorrhage. This is about the average mortality figure for bleeding ulcers.

The great difficulty with this problem, I think, is that most of these ulcers which bleed are posterior wall ulcers. As Dr. Truesdale and Dr. Allen have said, they are in a bad condition for any operation and, of necessity, any operation which removes a bleeding ulcer is one of considerable magnitude.

An operation which I think is of real value, although we have not had enough of the cases to prove it as yet, is the Devine operation, that is, the removal of the lower portion of the stomach, leaving the ulcer untouched, with a Polya anastomosis to the proximal portion of the stomach. This will not relieve those ulcers with large open vessels. It will, however, divide the operation and make a second-stage removal of the ulcer-bearing area of the stomach much simpler after the first anastomosis has taken place.

I think it is an extremely difficult situation. I find it most trying as to what to do for the bad risk hemorrhage cases. It is often much like many other serious conditions: whatever you do in the very ill cases where they have bled large amounts, will leave you feeling that you should have done something else.

Dr. Arthur W. Allen: In answer to Dr. Cheever's question about gastroenterostomy in bleeding ulcers, I am not yet prepared to state what our statistics show. I am going further into the subject. We have found a considerable number of bleeding ulcers that have bled after gastroenterostomy. I am sure that simple gastroenterostomy in the severe type of hemorrhage, where a large vessel is eroded on the posterior wall of the duodenum, would be an absolutely futile and useless procedure and would not help the patient at all, and bleeding would continue.

I fully realize that pylorectomy is a dangerous procedure on a patient in a depleted state. I do not believe, however, that anything short of radical surgery is going to save their lives. The mortality is going to be very high. Done once or twice a year by surgeons on duty at the hospital, it runs about 85 per cent, but I think it can be improved if we can work out a technique to stop the hemorrhage quickly. One might get a finger on the bleeding point in the crater of the ulcer, and then do excision with ligation of vessels while the bleeding was under control.

I am perfectly sure that if you try to open the duodenum and place sutures through the base of the ulcer, and so forth, your patient will bleed to death before the hemorrhage can be arrested. I have seen this happen two or three times.

So far as transection alone relieving the patient is concerned, this may be a good idea. The difficulty about it is that it might not stop the hemorrhage. The vessel might bleed from the other end, so to speak, so I think the first operation has got to include both sides of the ulcer rather than only one side.

That is the trouble with the Devine operative procedure in bleeding ulcers, I am afraid. I have had two cases of moderately severe bleeding, bleed again after the Devine procedure, which was a tremendous disappointment to me because I thought that this operation was the answer to our problem and I am sure that in certain poor risk cases, elderly people, etc., it is better than gastroenterostomy, but it isn't quite good enough in all of these cases. One patient has bled twice, at year and a half intervals after the operation, so he will need to have something more done. The other patient has bled only once so far since her Devine operation and is living on a very careful diet.

THE MAINTENANCE OF HEALTH WORK BY THE COMMONWEALTH FUND

The Fourteenth Annual Report of the Commonwealth Fund, published January 9 of this year, records expenditure of $1,573,438 during the past year. This Fund was established by Stephen V. Harkness with the object of doing something for the welfare of mankind.

In the interests of advanced public health and better medical and hospital service in rural areas and to support medical research, $808,457 was expended. In this connection the report of the fund, under the Presidency of Edward S. Harkness, expresses the opinion that public health and child guidance services are being maintained at a reasonable level despite the depression. Mr. Harkness also indicates his belief that public health holds its own by comparison with older governmental services and that the loss of income, which health departments must naturally share with other public health agencies, has not reached the point of real disaster. Especial attention has been given to the child guidance clinics with the feeling that, although resources have been diminished for the maintenance of this particular type of work, there continues to be a considerable degree of interest in the importance of this activity.

Attention is called to recent reports of the experimental work in connection with the Community Hospital at Glasgow, Kentucky, and the statement that requests for free care or reduced costs of care are on the increase. In this particular

(Continued on Page 253)

THE INCIDENCE, CHARACTER AND SIGNIFICANCE OF ABNORMAL PHYSICAL SIGNS IN THE CHEST OCCURRING AFTER MAJOR SURGICAL OPERATIONS*

BY RICHARD H. OVERHOLT, M. D.,† AND J. ROSS VEAL, M.D.†

THIS discussion is concerned with variations that often occur in the physical signs elicited upon examination of the chests of patients during the early period of their convalescence from major surgical procedures. We have been impressed by the frequency with which one may demonstrate physical signs which in themselves would indicate the presence of a serious pathological change in the lung or pleura. In a series of routine postoperative chest examinations, we have found diminished percussion, altered breath sounds, râles, and even tubular breathing in certain areas in a large percentage of cases. These signs have been transitory. As a rule no other evidence of a pulmonary complication became manifest, and the convalescence was entirely uneventful. In fact these altered physical signs have been found sufficiently often during the first few days after certain operations to force us to consider their presence as normal chest signs for this group of patients.

The literature regarding various aspects of the problem of postoperative pulmonary complications is quite abundant. Practically all of these considerations have been limited to reports of cases which had frank complications, or to studies of those which presented particular respiratory difficulties after operation. However, there have been reports regarding the pulmonary status of patients after operation from the standpoint of changes in vital capacity[1], reduction in diaphragmatic activity, and roentgenographic changes[2]. Muller, Overholt and Pendergrass[3] examined twenty-five upper abdominal cases and found that a large proportion presented abnormal auscultatory findings regardless of other evidences of a pulmonary complication.

The effect of prolonged bed rest alone upon changes within the lung has been commented upon in the literature on tuberculosis. Sewall[4] demonstrated areas of atelectasis and noticed differences in percussion and auscultation over areas that have been subjected to faulty aeration. He called attention to the transitory nature of these physical signs and to the fact that moist crackling râles displaced the tubular breath sounds as reëxpansion occurred. Webb, Forster, and Gilbert[5] also emphasized the importance of posture and faulty aeration in the production of abnormal physical signs in tuberculous subjects. They demonstrated by roentgenological examination that a diminished thoracic volume and an increased haziness of the lung shadow occurred on the dependent side as a consequence of a prolonged side position. They also called attention to the fact that immediately after turning the patient on the dependent side, the motion of the diaphragm increased only temporarily, and then subsided and became less marked than the movement of the diaphragm on the upper side. The effect of the lateral prone position on the movement of the diaphragm with subsequent alteration of pulmonary signs, has also been studied by Adams and Pillsbury[6]. Scott and Joelson[7] discussed the relation of posture to the production of massive atelectasis.

To our knowledge, there has not appeared a report of routine physical examinations of the chests of a large series of general surgical patients. The present study was undertaken to determine how frequently one might expect to elicit abnormal signs, regardless of any evidence of a respiratory difficulty after operation.

Two hundred unselected patients who presented no abnormal preoperative chest findings were examined on the first five and the seventh days of their convalescence. This examination included inspection, palpation, percussion and auscultation. In order to simplify tabulation of results whenever there was transmission of bronchial sounds in areas normally showing only vesicular breathing, the term tubular breathing has been used. We have not separately listed changes in tactile fremitus and spoken and whispered voice sounds because these signs were found over the same areas in which tubular breathing was elicited. We believe this simplification is justified, inasmuch as pulmonary cavitation and pleural effusion were not factors in this study. In some cases the examination was supplemented by roentgenograms. The anterior thorax was examined with the patient in the horizontal position. In abdominal cases it was necessary to examine the posterior aspect of the chest with the patient lying first on one side and then on the other. When possible, the posterior chest was examined with the patient in the sitting position. Surgical dressings were not disturbed.

In the cases studied, various types of anesthesia were employed. In the abdominal group, spinal anesthesia and intratracheal gas anesthesia predominated, with some having combi-

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nations of local and general anesthesia. Ethylene anesthesia was used in all of the thyroid cases. To all patients, preoperative sedatives had been given in rather large amounts.

One hundred patients were examined who had had an abdominal operation. In one-half of these the operative procedure was carried out in the upper abdomen, and in the remainder in the lower abdomen. In Table I there is listed the number of cases in which demonstrable changes in the physical signs were found. Most of the changes were noted the first day after operation. There was reduction in expansion in ninety-four of the patients. The position of the diaphragm on inspiration was found from one to three interspaces higher in ninety-three cases. In the percussion of the chest posteriorly, there was a diminution of resonance at the bases in fifty-one cases. At times it was difficult or impossible to determine the costophrenic angle by percussion as the note shaded off from the lung dullness above to the liver dullness below.

TABLE I

FREQUENCY AND APPEARANCE TIME OF ABNORMAL CHEST SIGNS AFTER 100 ABDOMINAL OPERATIONS

	Days after Operation					
	1	2	3	4	5	7
Diminished Expansion	94	—	—	—	—	—
Diminished Percussion Posteriorly	51	4	1	—	—	—
High Diaphragm	93	—	—	—	—	—
Upper Anterior Hyperresonance	67	2	—	—	—	—
Diminished Breath Sounds Posteriorly	80	3	—	—	—	—
Râles	20	15	5	3	2	—
Tubular Breath Sounds	5	8	5	4	—	—

In sixty-nine per cent of the patients who had abdominal operations, there was increased resonance in the upper anterior chest. The more marked the signs of hypoventilation at the bases posteriorly, the more evident was this change in the percussion note anteriorly. It was also observed that the superficial area of cardiac dullness was frequently decreased after abdominal operations. The size of this area was smaller in cases showing the greatest increase in resonance of the upper anterior thorax. On ten patients, the superficial area of cardiac dullness and the inferior lung border were plotted out during quiet breathing both before and after operation. Superimposed tracings were made. Figure I is a reproduction of tracings made on the chest of a patient before and twenty-four hours after a subtotal gastrectomy had been performed. This tracing also shows the altered position of the diaphragm.

In eighty-three per cent of the abdominal group, there was a diminution in the breath sounds over the posterior chest with an increase anteriorly. Râles, which persisted after several forced inspirations, were found in forty-five of the one hundred patients at some time during their convalescence. The appearance time during the course of the convalescence is indicated in Table I.

In many instances, râles heard on the first or second day were coarse, crackling, or of a wheezing type. Râles making an appearance later on were finer in quality and were heard in areas over which tubular breathing had been previously elicited, or at the bases where breath

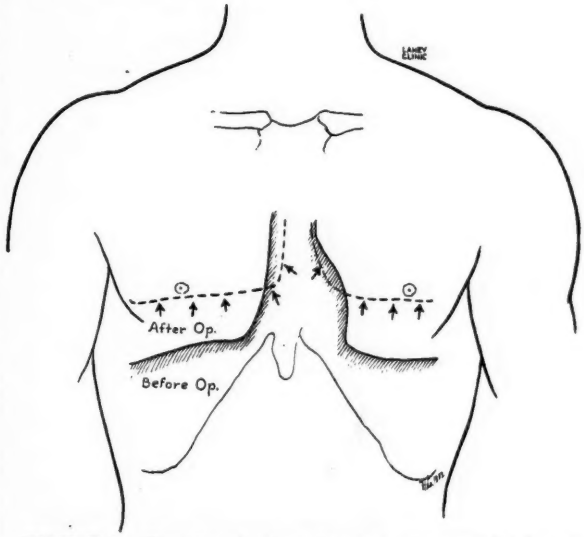

FIGURE I. Diagram showing change in the superficial area of cardiac dullness and the inferior lung border as outlined by percussion on a patient (G. Z.) before and after subtotal gastrectomy. The solid, shaded lines represent the tracings made before operation. The broken line indicates the lung border and the area of cardiac dullness one day after operation. Most of the change in this percussion finding is due to the elevated position of the diaphragm after operation. Some of the narrowing of the superficial area of cardiac dullness is due to a varying amount of hyperresonance over the anterior upper thorax after operation.

sounds were previously absent or diminished. Frequently râles were heard on the dependent side and a shift to the opposite side caused their disappearance. No record was kept of these transitory findings.

Areas over which persistent tubular breathing could be elicited were recorded in 22 patients. In the majority of cases this sign appeared on the second or third day. The size of these areas varied. Usually they were small and patchy, and were found posteriorly. Rarely could this sign be demonstrated bilaterally. In Figure II there is illustrated diagrammatically the areas over which abnormal auscultatory signs were most frequently heard. The posterior area of ventilated lung and the position of the diaphragm at various intervals after operation are also indicated. Figure III is a reproduction of tracings made of the posterior inferior lung border with the patient in the lateral position before and after a subtotal gastrectomy. The difference in the diaphragmatic levels and excursion of the two sides in the normal subject is shown as well as the change that frequently occurs after an abdominal operation.

The alteration of signs resulting from restricted lower thoracic and diaphragmatic movement was demonstrable in the majority of cases for three or four days. In Table II there is represented the length of time in days that the various physical signs persisted after operation. In this study the abdominal group was analyzed from the standpoint of the location of the incision to the frequency of râles and tubular breathing. In Table III is shown the number of cases in which these signs were elicited. They predominated in the upper abdominal group. In the same table is included the frequency of these two particular abnormal signs in relation to the anesthesia employed. It is interesting to note that râles were proportionately more frequent in the general anesthesia group, but that the incidence in which areas of tubular breathing was found was greater in the spinal group.

Lateral roentgenograms, made soon after abdominal operations, show definite changes in the

TABLE II

DURATION OF ABNORMAL CHEST SIGNS AFTER 100 ABDOMINAL OPERATIONS

	Days after Operation					
	1	2	3	4	5	7
Diminished Expansion	7	16	25	31	16	2
Diminished Percussion Posteriorly	5	11	8	21	11	1
High Diaphragm	7	13	31	31	7	—
Upper Anterior Hyperresonance	10	9	21	24	5	—
Diminished Breath Sounds	8	14	27	22	5	—
Râles	13	9	9	7	5	—
Tubular Breath Sounds	7	7	4	1	—	—

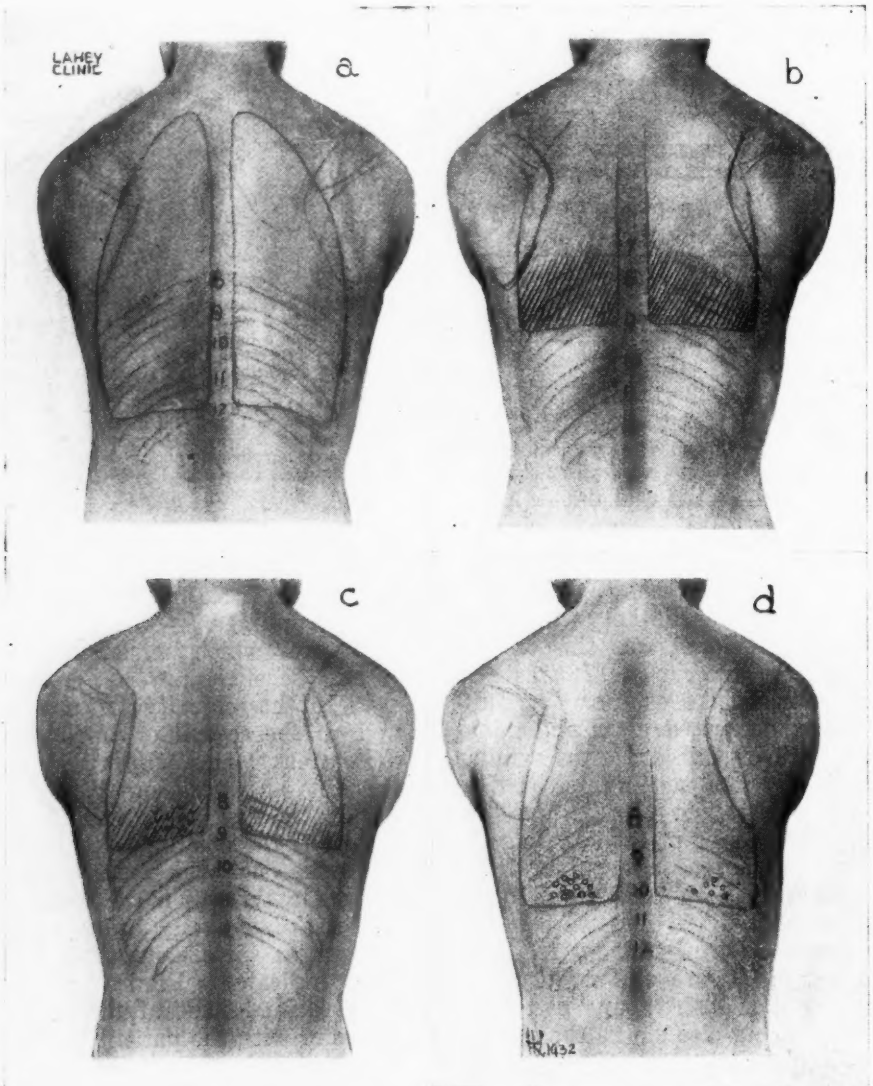

FIGURE II. Drawing of the posterior aspect of the chest, with landmarks, to illustrate areas in which altered physical signs are most frequently heard after abdominal operations. (a) Normal chest showing lung boundaries. (b) Twenty-four hours after operation with elevated position of diaphragm. Rarely can the lower lung border be found to extend below the eighth or ninth rib posteriorly after an abdominal operation. Shaded part represents areas over which breath sounds are diminished. (c) Forty-eight hours after operation. Shaded areas indicate position over which the diminished breath sounds are still heard. Check marks show where tubular breath sounds are frequently elicited. (d) Seventy-two hours after operation. At this time aeration at the bases is better, and râles may be elicited which are illustrated by small circles. The diaphragm has partially returned to its normal position.

TABLE III

PHYSICAL SIGNS—ABNORMAL—FREQUENCY

	Number of Cases	Râles	Tubular Breathing	Pneumonia	Death
Upper Abdominal Cases	50	27	18	2	1
Lower Abdominal Cases	50	15	3	0	0
Spinal Anesthesia	83	31 (38%)	19 (23%)	2	1
General Anesthesia	16	11 (69%)	2 (12%)	0	0

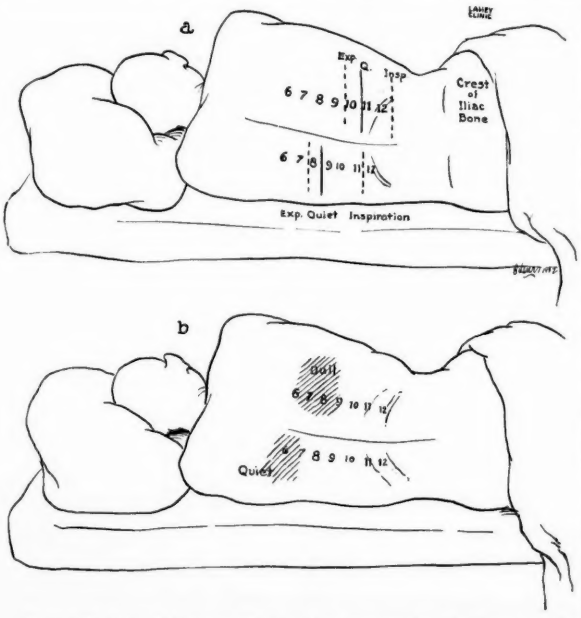

FIGURE III. Diagram illustrating percussion findings on the posterior aspect of the chest of a patient (G. Z.) before and twenty-four hours after a subtotal gastrectomy had been performed. The patient is in the horizontal lateral position. The upper figure shows the position of the inferior lung border at full expiration, at full inspiration, and during quiet breathing, as actually recorded by percussion. Note that the position of the diaphragm is higher on the dependent side. The lower figure illustrates what is found upon percussion of the posterior chest after an abdominal operation. The lower lung borders are noticeably higher than before operation. On the dependent side this border is rarely found below the level of the seventh rib. The diminished resonance over the lung bases and the markedly reduced diaphragmatic excursion make it difficult to outline this border after operation. The mean position of the diaphragm is indicated by the lower border of the shaded area. The position of the ribs has been shown so that a comparison with the preoperative findings can be made.

lower lobe posteriorly which aid in an explanation of the abnormal signs that are elicited. Figure IV is a lateral roentgenogram made twenty-four hours after cholecystectomy. For comparison a similar study was made in the second week of the patient's convalescence. The difference in diaphragmatic position, lung volume, and degree of pulmonary aeration is clearly illustrated. There is an obliteration of the costophrenic sinus posteriorly, a haziness of the entire pulmonary area behind the heart, and a decrease in the lung density anteriorly. Anterior-posterior roentgenograms of the same patient as shown in Figure IV are reproduced in Figure V. These illustrate again the diminished postoperative lung volume and changes in the cardiac outline.

The presence of physical signs which are indicative of pulmonary consolidation does not necessarily mean pneumonia, if elicited during the early convalescence of a postoperative case. The clinical chart of a patient who had had a

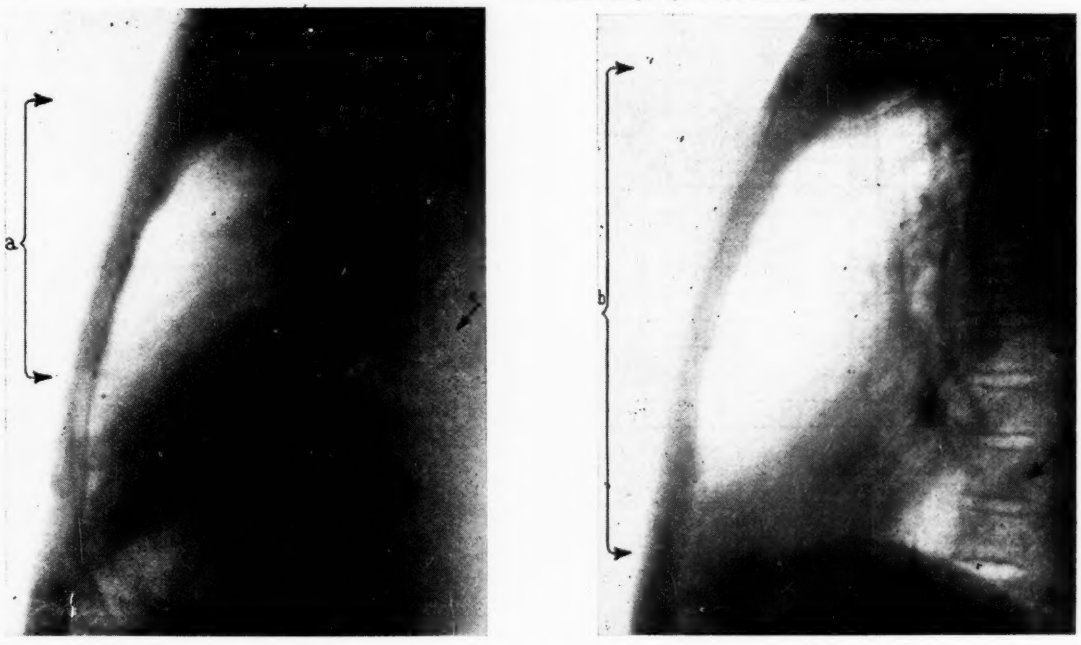

FIGURE IV. Lateral roentgenograms of the chest of a patient (J. D.) made twenty-four hours after a cholecystectomy had been performed; and two weeks after operation. The same position of the patient and exposure were used. Both were made at full inspiration. (a) Indicates the vertical measurement of the chest from the dome of the diaphragm to the first rib anteriorly. Compare this with (b), which represents the normal vertical measurement for this patient. Also compare regions c and d. In the first postoperative film there is decreased aeration posteriorly with the posterior costophrenic sinus almost completely obliterated. In this same film there is a relative increase in aeration anteriorly. The difference in the two films is quite apparent and they provide an explanation for the frequency of positive physical signs in the chests of such patients.

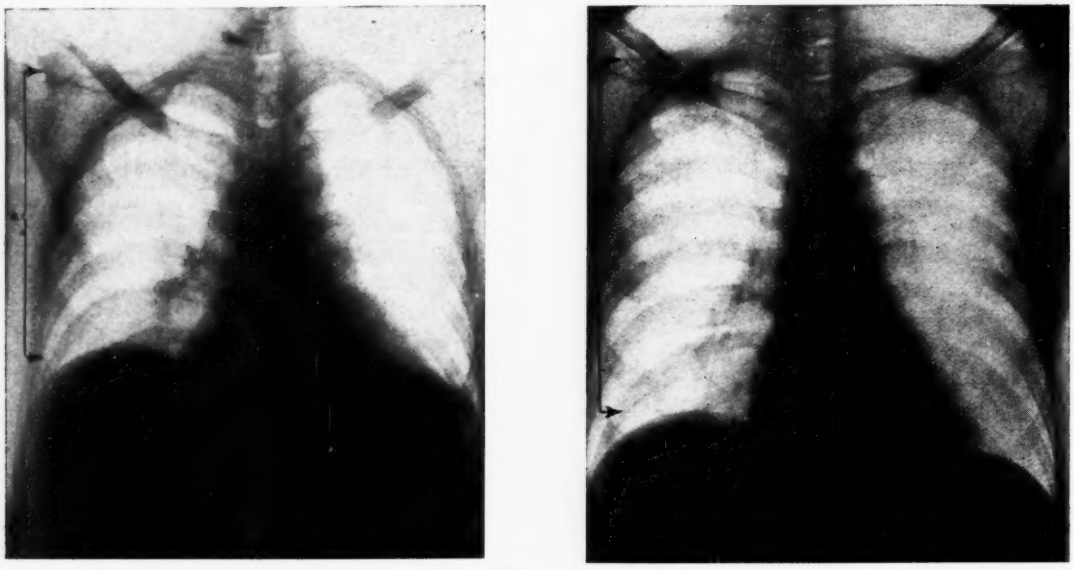

FIGURE V. Anterior-posterior roentgenograms of the same case as in Figure IV. Both are bedside examinations. The first study was made twenty-four hours after a cholecystectomy had been performed. The vertical measurement of the chest is indicated by a. The second film was made two weeks after operation and represents the normal thorax for this patient. The distance from the diaphragmatic dome to the first rib is indicated by b. Note also the change in the cardiac shadow in the two films.

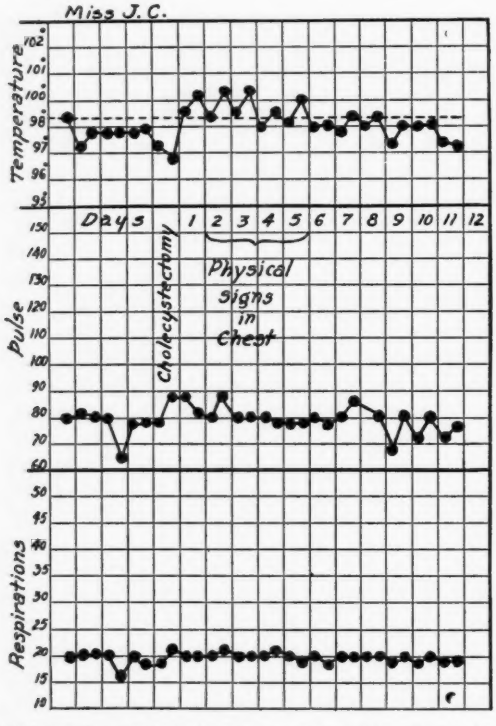

FIGURE VI. Clinical chart of a patient, Mrs. J. C., showing a satisfactory convalescence following cholecystectomy. During three days of the period of convalescence there could be demonstrated in the right chest posteriorly diminished resonance, increased tactile fremitus and tubular breath sounds. In other words, the physical signs alone indicated consolidation and a pulmonary complication. The fact that the patient had an uncomplicated course from the standpoint of an actual infection in the respiratory system is evidenced by the normal clinical chart.

normal convalescence following cholecystectomy is shown in Figure VI. This patient presented on the third and fourth days increased tactile fremitus, diminished resonance on percussion, tubular breathing and bronchophony over the right base posteriorly. There were no symptoms of a pulmonary nature, such as cough, expectoration, cyanosis, dyspnea, or chest pain. As was stated before, twenty-two of the hundred abdominal cases presented similar signs, although only two of them developed a true pneumonia, and could be classified as such. One of the cases died of this complication. See Table III.

In operations that did not involve the abdomen, the incidence of altered physical signs in

TABLE IV

FREQUENCY AND APPEARANCE TIME OF ABNORMAL CHEST SIGNS AFTER 100 EXTRA-ABDOMINAL OPERATIONS

	Days after Operation					
	1	2	3	4	5	7
Diminished Expansion	11	5	1	—	1	—
Diminished Percussion	9	4	1	—	1	—
High Diaphragm	—	—	—	—	—	—
Anterior Emphysema	9	—	—	—	—	—
Diminished Breath Sounds	1	—	—	—	—	—
Râles	10	3	1	1	—	—
Tubular Breathing	—	—	—	—	—	—

TABLE V

DURATION OF ABNORMAL CHEST SIGNS AFTER 100 EXTRA-ABDOMINAL OPERATIONS

	Days after Operation					
	1	2	3	4	5	7
Diminished Expansion	10	6	1	—	1	—
Diminished Percussion	10	3	1	—	1	—
Anterior Emphysema	3	4	1	1	—	—
Diminished Breath Sounds	1	—	—	—	—	—
Râles	8	5	1	1	—	—

the chest was surprisingly small. The extra-abdominal group comprised thyroid cases principally, together with a certain number of cases in which kidney, prostate and breast operations had been performed. Table IV shows the frequency and appearance time of abnormal signs which were demonstrated in the extra-abdominal group. This table has been prepared in a way similar to Table I so that a comparison can be easily made between the two groups. Less than fifteen per cent of the extra-abdominal cases showed any abnormal signs. In no patient in this group were we able to demonstrate an elevated diaphragm or areas of tubular breathing. The duration of the abnormal signs was definitely shorter in the extra-abdominal group. In most cases the signs lasted but one day and in only two of the 100 cases did the signs persist longer than two days, as shown in Table V.

DISCUSSION

This study indicates that an alteration of physical signs is to be expected far more frequently following abdominal operations than after procedures in other parts of the body. In patients after thyroidectomy, or after some other extra-abdominal operation, including even breast amputation, the number that presented abnormal signs in the chest was surprisingly small. In the abdominal group, however, twenty-two per cent of the patients furnished signs indicative of consolidation, namely, diminished percussion, increased tactile fremitus, tubular breathing, and increased transmission of voice sounds. This suggests that an abdominal operation is more likely to disturb normal respiratory activity than an operation elsewhere. One of us[2] has demonstrated by vital capacity studies, roentgenograms, and fluoroscopy, that a marked reduction in pulmonary ventilation attends all abdominal operations. The diaphragm assumes a high position near the normal expiratory phase and its movements are definitely restricted. Often the accessory muscles of respiration are brought into play, resulting in an increased activity of the upper anterior chest wall. In other words, breathing is disorganized to a certain extent after abdominal operative procedures. Shallow respirations are carried out with the diaphragm in the expiratory position, and the upper thorax in the inspiratory position. One can visualize the type of breathing that occurs after abdominal operations by drawing in on the abdominal muscles, holding them fixed there, expanding the upper chest, and then carrying out shallow respiratory movements. It is quite obvious that a reduced lung volume, to such a degree as the lateral roentgenograms in Figure IV show, would result in changes in the physical signs over the lower lobes posteriorly. The use of the accessory muscles and compensatory activity of the upper chest account for the hyperresonance noted anteriorly. Whether the alteration in the physical signs elicited over the lower lobe is merely a reduction in breath sounds, or those which ordinarily are interpreted as being due to consolidation, depends upon the degree to which respiratory movements are limited, and the length of time that diminished ventilation exists. Tubular breathing was noted more frequently on the third and fourth days, indicating that there had been prolonged faulty aeration of the bases, air absorption and an actual collapse, or an apneumatosis of a major portion of the alveolar tissue of that area. That the alteration of the physical signs is due to mechanical factors, and not to inflammatory changes in the lung itself, is quite apparent, for two reasons. In the first place, these signs appear at a time when pulmonary ventilation is most restricted, and clear up as more adequate respiratory movements are carried out by the patient. Secondly, even in the presence of signs of consolidation in the postoperative patient, there frequently are no constitutional evidences of infection and the subsequent course of events suggests an uncomplicated convalescence.

SUMMARY

1. The frequency with which abnormal physical signs in the chest may be elicited during the postoperative examination of surgical patients has been pointed out and discussed.
2. Abnormal signs are more frequent and of longer duration after abdominal operations than after extra-abdominal operations.
3. From the standpoint of prognosis and classification of postoperative pulmonary complications, caution should be exercised in the interpretation of abnormal physical signs.

REFERENCES

1 Churchill, Edward D., and McNeil, Donald: The reduction in vital capacity following operation. Surg. Gynec. Obst. 44:483, 1927.
Powers, John H.: Vital capacity: its significance in relation to postoperative pulmonary complications. Arch. Surg. 17:304 (Aug.) 1928.
2 Overholt, Richard H.: Postoperative pulmonary hypoventilation. J. A. M. A. 95:1484 (Nov. 15) 1930.
Patey, D. H.: The effect of abdominal operations on the mechanism of respiration: with special reference to pulmonary embolism and massive collapse of the lungs. Brit. J. Surg. 17:487, 1929-30.
Allen, Kenneth D. A.: The post-operative behavior of the diaphragm. Radiology. 16:492 (Apr.) 1931.
3 Muller, George P., Overholt, Richard H., and Pendergrass, Eugene P.: Postoperative pulmonary hypoventilation. Arch. Surg. 19²:1322 (Dec.) 1929.
4 Sewall, Henry: Pulmonary atelectasis as a source of confusion in physical examination of the chest. Am. Rev. Tuberc. 4:811 (Jan.) 1921.
5 Webb, Gerald B., Forster, Alexius M., and Gilbert, G. Burton: Postural rest for pulmonary tuberculosis. J. A. M. A. 76:846 (March 26) 1921.
6 Adams, Roy D., and Pillsbury, Henry C.: Position and activities of the diaphragm as affected by changes of posture. Arch. Int. Med. 29:245 (Feb.) 1922.
7 Scott, W. J. Merle, and Joelson, James J.: Postoperative massive atelectasis: 1. The influence of posture. Arch. Surg. 15:855 (Dec.) 1927.

THE PREVENTION AND CONTROL OF TUBERCULOSIS IN THE COMMONWEALTH OF MASSACHUSETTS, WITH SPECIAL REFERENCE TO CHILDHOOD TUBERCULOSIS AND THE TEN-YEAR PROGRAM*

BY FREDERICK T. LORD, M.D.†

I WELCOME this opportunity to discuss certain aspects of the tuberculosis problem with the members of the Health Departments of the State. It is clear that the prevention and control of the disease cannot be accomplished without your coöperation and assistance.

DECLINING MORTALITY

The pulmonary form of the disease is of chief importance and there has been an encouraging decline during the past 75 years in the mortality from 395 to 53.9 deaths per 100,000 living. This remarkable diminution is in part to be ascribed to improved standards of living and it is especially important to maintain these standards in the face of the present economic depression. The decline is also in part to be ascribed to a gradually diminishing amount of community infection.

MEASURES FOR THE PREVENTION AND CONTROL OF TUBERCULOSIS

There are two measures of major importance in the prevention and control of the disease, institutional care and early diagnosis.

Institutional care has been accomplished by a generous provision of beds in State, County and other hospitals increasing in number from 3327 in 1928 to 4556 at present and with the completion of the Worcester County Hospital there will be over 1.8 beds for each annual death, a quota, so far as I know, not exceeded by any other State. Institutional care affords the opportunity for protection of others and for the patient, an arrest of the disease by rest, and improvement of nutrition and in selected cases collapse therapy by artificial pneumothorax, phrenic nerve operation and thoracoplasty. But this method of handling the problem by the provision of beds though indispensable is expensive, and is applicable for the most part to the disease in its later and less hopeful stages. There are, however, long waiting lists for admission and the number of beds is still inadequate.

The second measure of major importance is early diagnosis and the earlier the diagnosis the more helpful both to the affected individual and the community. The adult type of tuberculosis is a secondary invasion by tubercle bacilli and this may occur from within through transport of organisms acquired during childhood or from without in consequence of continued exposure. In either case by the time this secondary invasion has occurred the disease is no longer in its earliest stages. Through the enterprise of the State Department of Public Health, means have been afforded by which the disease can be discovered during the primary stage.

In 1924, a new program was initiated by Dr. Henry D. Chadwick for the investigation of school children on a State-wide scale for a period of ten years. As this has developed under our Commissioner of Public Health, Dr. George H. Bigelow, it has become apparent that if its advantages are fully realized it can be made the most important project ever undertaken for the prevention and control of the disease. The work is under the charge of Dr. Alton S. Pope, Director of the Division of Tuberculosis and I am indebted to him for the statistical data.

The Ten-Year Program is now in its eighth year and it is desirable to consider what has been accomplished.

INCIDENCE OF TUBERCULOSIS IN CHILDREN

Up to and including the school year 1931-32, 275,252 school children have been investigated. In children, owing to the insidious onset of tuberculosis and the usual lack of symptoms, reliance must be placed on skin tests with tuberculin and roentgen-ray examination of the reactors. Positive skin tests have been obtained in 69,049 children (25%) indicating that tuberculous infection is present in 25 out of every hundred. By roentgen-ray examination of the reactors it has been found that 3942 (1.43%) or between one and two out of every hundred have the childhood type of tuberculosis and 203 (0.07%) or 7 in every 10,000 the adult type of the disease. The incidence of pulmonary tuberculosis is found to be six times as great in the high as the primary school population, or about 2 per 1000.

DECLINING INCIDENCE OF INFECTION

A downward trend of infection would seem likely in view of the substantial reduction in the death rate. Conclusive evidence in this matter is lacking, but we know through von Pirquet's skin tests with tuberculin that in 1909 in Vienna among the poorer classes over 90% of children were infected by the fourteenth year. In 1917, Bartlett's study (*Interstate M. J.*

*Read before the Massachusetts Association of Boards of Health, at Boston, November 2, 1932.

†Lord—President, Massachusetts Tuberculosis League. For record and address of author see "This Week's Issue," page 267.

25:527, 1918) in Framingham of 460 children from one to seven years of age showed positive tests in one-third of the cases. Re-investigation of children in Framingham in 1926 by Chadwick and Zacks (*New Eng. J. of Med.* 200:332 [Feb. 14] 1929) showed infection in only about one-quarter of the children of a somewhat higher average age. The proportion with infection in the child population of the State is now only about 35% at the age of 14. Though these comparisons are subject to certain objections, there appears to have been in children a downward trend from almost universal infection by the age of 14 twenty-three years ago to only about one-third at present.

During so short a period as the past five years, the trend of infection appears to be downward as indicated by the percentages of reactors among grade school children as follows: 1927-28, 28%; 1928-29, 29%; 1929-30, 23%; 1930-31, 26%; 1931-32, 17%.

IMPORTANCE OF CONTACT

The high incidence of tuberculous infection among children intimately exposed to the disease in the family is clearly evident from investigations by many workers soon after the discovery of the von Pirquet skin test. It was found by Chadwick and Zacks that approximately twice the number of children react to tuberculin when there is a history of exposure to a case of pulmonary tuberculosis. In children with the childhood type of the disease Pope (*J. A. M. A.* 97:846 [Sept. 19] 1931) finds that there is a history of exposure at some time to an open case in the family in 55 per cent for females and 53 per cent for males. Among 30 in whom pulmonary tuberculosis developed under observation the contact rate was 78 per cent for boys and 71 per cent for girls. Contact with open tuberculosis is the chief factor in the development of the disease in children and the breaking of this contact is essential for the health of the child. Infection from bovine sources must, of course, also be considered.

LACK OF SYMPTOMS IN THE CHILDHOOD TYPES OF TUBERCULOSIS

A wider appreciation of the frequency of an insidious onset and latent course of tuberculosis in children is an important result of the study. In the juvenile type there are usually no symptoms which can be ascribed to the lesions. The disease may be progressive without constitutional disturbance. In the adult type of pulmonary tuberculosis, as indicated by Zacks' study, there are no significant symptoms or physical signs in more than a half of the cases and the x-ray alone indicates the gravity of the situation. The child may, however, be easily fatigued and under weight for age and height. The manifestations common in adults are late in appearance. Râles occurred 2.6 years and cough and expectoration 3 years after the first x-ray evidence. Positive sputum is rarely demonstrable in children.

OUTLOOK WITH THE JUVENILE AND THE ADULT TYPES OF TUBERCULOSIS IN CHILDREN

Valuable information regarding the outlook has already been obtained and more may be expected from the further follow-up of the children already examined in the Chadwick Clinics. A positive skin test to tuberculin in the absence of other indications may be regarded as of little moment. In the childhood type, in the absence of symptoms, the outlook is apparently favorable provided further infection is prevented by the breaking of contact and the establishment of favorable environmental conditions. Excluding those hospitalized, among 4600 children, with or suspected of the childhood type Pope (l.c.) finds that only 30 developed pulmonary tuberculosis within two to six years.

The chance of recovery from the adult type of tuberculosis in children is not good. Of 110 cases followed by Zacks, the majority have slowly progressive lesions and the mortality is 24 per cent after about five years. Morgan's experience at Westfield with children with this type indicates that such lesions must be regarded as of the utmost gravity.

MAGNITUDE OF THE PROBLEM

The magnitude of the problem is indicated by the large number of children found to have manifest tuberculosis. There may be estimated to be about 18,000 children in the State with the childhood type of the disease, many of whom may be expected to develop the adult type unless appropriate preventive measures are taken. In addition to the 203 cases of the adult type already discovered, there must be at least 800 more. Owing to the insidious manner in which the disease develops and the difficulty of recognition without skin tests with tuberculin and roentgen-ray examination, doubtless most if not all of these 800 children are at present unsuspected and uncared for victims of this grave form of the disease.

MANAGEMENT OF THE CHILDHOOD TYPE OF TUBERCULOSIS AND FACILITIES AVAILABLE

Children with the childhood and the adult types of the disease are reported to local Boards of Health and you are thus afforded valuable information for the assistance of the child and the community. Those with the childhood type of tuberculosis and otherwise normal may in general be expected to do well under satisfactory home conditions including the elimination of further infection, but careful supervision and re-investigation including roentgen-ray examination at stated intervals should be provided. Opportunity should be afforded for rest during the day, extra feedings, fresh air, sun-

shine and the avoidance of strenuous exercise. More special privilege classes, open-air and open-window schools and preventoria are desirable for children in this group. The affiliated organizations of the Massachusetts Tuberculosis League play an important part in the problem by the selection for the summer health camps of children with inactive and inextensive juvenile types of the disease. Owing to the importance of tuberculosis as a community problem the activities of the summer camps should be devoted more largely than at present to the care of these children. For children with active, progressive or extensive, juvenile types of tuberculosis, sanatorium care is desirable, unless equal or better facilities can be provided at home.

It should be appreciated that the evidence accumulated by Zacks' survey of 110 cases and Morgan's experience at Westfield indicating the gravity of the adult type of pulmonary tuberculosis in children makes it imperative to institute remedial measures as soon as the diagnosis is made. Absence of symptoms and good general condition are likely to lead to a false sense of security, but the serious outlook demands immediate, absolute and long-continued bed rest for those under 20 years of age, even in the absence of indications of activity of the disease. Increasing appreciation of the tendency of the lesions to spread has led to a gradual prolongation of the period of bed-rest at Westfield until now any child showing definite pulmonary involvement by x-ray is given a minimum period of one year of bed treatment regardless of symptoms. If symptoms are present on admission, the duration of bed-rest may be roughly stated to be one year from the time the symptoms disappear and often longer in children with extensive lesions. Lack of favorable progress under such a régime warrants early resort to collapse therapy in selected cases in this group of children.

There are now 650 beds in State institutions available for children with various forms of tuberculosis and there is at present no pressing need for an increase in these facilities.

INVESTIGATION OF FAMILY CONTACTS

The discovery of tuberculosis in a child may not only be life-saving to the affected individual by the application in time of remedial measures, but is also of great moment to the community in preventing the spread of infection. Case finding in childhood tuberculosis is only a first step and should be followed by an attempt to discover the source of infection, and eliminate the further spread of the disease. Otherwise, a singularly favorable opportunity is lost. The disease is largely due to family infection which can best be found by an investigation, including roentgen-ray examination, of other members of the household. Sufficient evidence is already at hand to indicate that by this means many otherwise unsuspected spreaders of disease will be discovered. A history of exposure in more than one-half of the children with the juvenile type of tuberculosis and in about three-quarters of those with the pulmonary form is an intimation of the importance of this aspect of the problem. Extension of the investigation to include the family was outside of the scope of the project as originally outlined. It was done in one community last summer and plans are now being formulated to make this important addition to the program.

ECONOMIC ASPECTS

Time permits only a brief reference to the economic aspects of the problem. I estimate that during the past year it cost about $140 for the discovery of each case of juvenile and adult type of tuberculosis in children. Sanatorium care costs about $900 annually for each bed. The elimination of the necessity of bed care by the arrest of childhood tuberculosis and the prevention of infection of others through contact infection means a large saving. The economic importance of the investigation of children for tuberculosis on a large scale, however, will not be fully realized until the enterprise includes the discovery and control of the sources of infection.

DIFFICULTIES ENCOUNTERED

It has been a matter of serious concern to me for some time as President of the Massachusetts Tuberculosis League, that the proportion of consents from parents of school children for the examinations has been far below one hundred per cent. In 1930-31 the proportion was 59 per cent in the grade and 48 per cent in the high schools, in 1931-32, 69 per cent and 62 per cent respectively. When we consider that the expense is met not by the parent, but by the taxpayer, and that the discovery of tuberculosis by this means may be life-saving for the child, it is amazing that a larger proportion of parents do not eagerly embrace the opportunity. The explanation must be that the community is not adequately informed of the far-reaching importance of the investigation in advance of the arrival of the Clinics. I consider it a special responsibility of the League and its affiliated organizations to help to make the advantages of the Clinics more widely known and trust that you, also, will help in this undertaking. The project deserves a much larger measure of public support.

There is still a large group in which a definite diagnosis cannot be made and the condition must be regarded only as under suspicion. A chief difficulty is the distinction by x-ray between axially radiated vessels and tuberculous glands. Shortening the time of exposure of the films has done much toward lessening the difficulty but has not solved it. A much longer

period of observation of a large unselected group with the juvenile type of tuberculosis is desirable before the seriousness and the ultimate outcome in such cases can be determined. Lack of information on the part of physicians and the public regarding the indications for treatment and the proper method to be selected in individual cases is responsible for some confusion and lack of coöperation. Though this is a difficult matter and a difference of opinion is inevitable in consequence of the complicated nature of the problem, it is desirable that a circular of information from authoritative sources be furnished embodying recommendations based on data already available. After completion of the case-finding service, the Chadwick Clinics serve only in an advisory capacity leaving the responsibility for further action to the local boards of health and the family physician. Inability or unwillingness on the part of parents to comply with the recommendations is an obstacle to the complete success of the project. Community education will help in the solution of these difficulties. The best method of accomplishing the breaking of contacts is likely to differ in individual cases. Hospitalization of the open case will often solve the problem. A change in the habits of living and instruction in hygienic measures may suffice in certain cases. Necessity for disruption of families, temporary though it may be, is a troublesome problem with important economic and social aspects. When necessary, however, means must be found for its accomplishment with the assistance of local agencies.

CONCLUSIONS

In conclusion, let me say that the discovery of tuberculosis by the routine examination of school children may be life-saving to the affected individual by the application in time of remedial measures and of great moment to the community in preventing the spread of infection. The possibility afforded for early diagnosis, the breaking of contacts and controlling the sources of infection, make the State-wide investigation of school children the most important project ever undertaken for the prevention and control of the disease.

A PROGRAM FOR TUBERCULOSIS CONTROL IN MASSACHUSETTS*

BY GEORGE H. BIGELOW, M.D., † AND ALTON S. POPE, M.D.†

FOR the past eight years the Commonwealth of Massachusetts has carried on the most extensive program ever undertaken for the detection of tuberculosis in children. Now at the beginning of the ninth year of this Ten-Year Program it becomes necessary to make some definite decision in regard to the future of this work. Under the original understanding with the Legislature of 1924 the Department of Public Health feels that it assumed an obligation to terminate the general program at the end of ten years. This the Department now feels obliged to do. It also feels, however, that definite plans must be made for preserving the essential services and securing the permanent benefits of the work already done.

In the foregoing article Dr. Lord has described the principal findings of the eight years' experience, and explained their practical application. Suffice it to say that the Chadwick Clinics have shown the prevalence and importance of tuberculous infection in children, and demonstrated a practical method of diagnosis. Now that the demonstration is nearing its end the Department is faced with a twofold problem: first, to work out a plan which is suitable for general application, and secondly to organize the machinery for its effective operation.

The most significant thing which has come out of the Ten-Year Program is its demonstration of the relationship between infection in children, and adult tuberculosis. Among all children given the tuberculin test the proportion of reactors has been twice as high among those with a known family contact with the disease. In a series of 110 children with pulmonary tuberculosis Zacks[1] was able to get a history of contact with an open case in the family in 70 per cent. Important as it is to find such cases in children at the earliest possible moment for the sake of the patient, it is even more important from the community standpoint to discover the source of infection. In fact, the diagnosis of tuberculosis in a child should be the beginning, not the end, of our program. Otherwise, the original unsuspected focus may continue to spread the disease in his home and in the community. Thus we see childhood tuberculosis not as a separate problem, but as a very important part of the whole problem of tuberculosis.

In recognition of these facts the Department is now modifying its program for the remaining year and a half to include examination of the immediate members of the family of all school children found to have tuberculosis. Such examination depends, of course, upon the individual's consent and the approval of his family physician. This will mean slowing down the rate of examination in schools, but with local coöperation will, we believe, uncover more un-

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From the Massachusetts Department of Public Health.

†Bigelow—Commissioner of Public Health for Massachusetts. Pope—Director, Division of Tuberculosis, Massachusetts Department of Public Health 1930 to date. For records and addresses of authors see "This Week's Issue," page 267.

suspected tuberculosis than all other methods combined. In Tennessee, Gass and Bishop[2] found that 23 per cent of all family contacts of cases of tuberculosis were themselves suffering from the disease. In a series of out-patient examinations of 500 family contacts of patients admitted to the Middlesex County Sanatorium Remick and Peters[3] found that 19 per cent had either the adult or childhood form of tuberculosis. And what is especially significant, the majority of cases so discovered were in an early, favorable stage of the disease. For two or three years the out-patient departments of the State Sanatoria have offered to practicing physicians this kind of examination for the family contacts of cases which they have referred for diagnosis, and the results have been very gratifying.

As a permanent program it is proposed that examinations, including the von Pirquet test, x-ray of the reactors and physical examination, in indicated cases, be made annually of children in the sixth and eleventh grades, as part of the general school medical examination. Since the most important thing in childhood tuberculosis is the location of the sources of infection, all such examinations should include examination, with x-ray, of members of the immediate families of children who show roentgenological signs of the disease. Such examinations would be made only with the approval of the attending physician, and all cases of tuberculosis found would be reported to the local board of health, and referred to the family physician for treatment and follow-up, as at present.

The success of such a program depends obviously upon effective organization, competent trained personnel, and local interest and responsibility. In a few of the larger cities this work could be effectively carried on entirely by the local health department. In the smaller places that would, of course, be out of the question. It is accordingly proposed that the State and County Sanatoria by mutual agreement offer their services to the local boards of health for school tuberculosis examinations in their respective districts, using the members of their resident staffs for this purpose. The local board of health and school committee, assisted by the State District Health Officer, would arrange for the examinations in the schools. The tuberculin tests would be made and read by the local school or board of health physician, and the reactors referred to the Sanatorium for x-ray. Such examinations in the nearer schools could be made in the out-patient departments of the sanatoria, but it would probably be necessary for the Sanatoria to provide portable x-ray apparatus for use in the more distant towns. As there are eight county and four state sanatoria, the amount of work involved for each institution would not be excessive. Nursing service for the examinations and follow-up would be provided by the towns, as at present. All legal responsibility for the control of tuberculosis, as for the control of other communicable diseases, is by statute vested in the local boards of health.

Under this plan the county and state sanatoria would be made clinical centers for all tuberculosis work in their respective districts. Each would have a list of reported cases in its territory, and reports of new cases would be furnished periodically by the local boards of health and the State Department of Public Health. In this way the sanatorium would be in a position to be of the greatest assistance to the local boards of health in securing the examination of family contacts. During the transition from State to local systems of case-finding the Department of Public Health would give every possible assistance to the reorganization of the work. One or two portable x-ray units, and probably a clinic unit, would be continued to assist the county sanatoria until such time as the entire responsibility can be taken over locally. In certain areas it may also be necessary for the State to provide temporary service for county institutions which cannot immediately take the full responsibility for their districts.

The Department of Public Health feels very strongly its responsibility for the children already found to be tuberculous in the Chadwick Clinics, and now being followed by the so-called Follow-up Clinic. To care for these children during the transition period it is proposed to continue the present Follow-up Clinic, making annual examinations of the children already diagnosed until they have completed their school course. Follow-up of tuberculous children found in the schools after June 1934 should be a local obligation.

Closely associated with the problem of childhood tuberculosis and of vital importance to the whole tuberculosis program is the question of effective use of sanatoria. With the opening of the new Worcester County Sanatorium, Massachusetts will have 1.8 beds for each annual death from pulmonary tuberculosis, a figure closely approaching the standard of two beds for each death, recently suggested by the National Tuberculosis Association. In quality of tuberculosis hospital service also the state maintains a standard which compares favorably with any part of the country.

With such facilities for treatment available it is discouraging to realize that a majority of our sanatorium beds are occupied by advanced, unfavorable cases. In fact, over 80 per cent of all patients are classified as moderately or far advanced on admission. Figures recently obtained from death certificates and morbidity data in the Department of Public Health for the years 1924-1929, inclusive, show that 25 per cent of all reported cases of tuberculosis died within six months. Of all recorded tuberculosis deaths, 75 per cent occurred within six months of report. Obviously such patients were practically

beyond help when discovered. We have been inclined to pity the states which have no adequate sanatorium facilities, but how can the best of sanatoria be used effectively or economically until a diagnosis of tuberculosis can be made before the patient has lost his best chance of recovery?

It is a truism to repeat that tuberculosis which can be diagnosed by physical signs is no longer early, yet our death certificates show that over 60 per cent of all fatal cases in the State are diagnosed that way. In only 22 per cent of such cases had a sputum examination been made, and in only 12 per cent an x-ray of the chest. It is well recognized that early cases of pulmonary tuberculosis often give no symptoms or physical signs and that diagnosis of the disease in a stage favorable for treatment depends to a very great extent upon the widespread use of x-ray facilities. For several years the Department of Public Health, through the out-patient departments of its sanatoria, has been giving this type of diagnostic service to the physicians of the State. It is now proposed that the Department, and the County Commissioners of each County, furnish on request to Massachusetts physicians x-ray examination of all family contacts of known cases of tuberculosis. Such examinations should be furnished through the out-patient departments of the State and County Sanatoria, as authorized under Chapter 36, Acts of 1931. This service should be limited to one film of each contact, except when further x-ray is necessary to establish a diagnosis. To increase the value of the report to the physician the institution should feel free to make a physical examination of the patient when indicated. All reports would be made directly to the physician who referred the case.

To secure a plan both practical and acceptable to the organizations directly concerned with tuberculosis work in Massachusetts the Department has submitted the program above outlined to the following groups: the Superintendents of the County Sanatoria, acting as Advisory Board of the Department of Public Health; a special committee of the Tuberculosis Section of the Massachusetts Medical Society, and the Executive Council of the Massachusetts Tuberculosis League. Conferences with these representative groups have been of great value to the Department of Public Health in shaping its program and the plan here outlined has received the unqualified approval of each group.

The successful adoption of an effective tuberculosis program by local agencies depends to a great extent upon an alert, well-informed public opinion. In one county the Massachusetts Tuberculosis League took an active part in the organization of the school clinics at the beginning of the Ten-Year Program. In other counties the County Associations have assisted with special tuberculosis projects. The League has always given its active support to the movement, and now is prepared to assist educationally and by direct coöperation with local agencies in the reorganization of the work.

SUMMARY

A program for tuberculosis work in Massachusetts is outlined, with the following objectives:

1. To establish on a local basis an adequate system of examinations of school children to determine infection with tuberculosis, and through examination of family contacts to discover so far as possible the sources of such infection. While each local board of health is the agency primarily responsible for the control of tuberculosis within its jurisdiction, an effective program must depend on active coöperation between the board of health, the school committee, the county sanatorium, the practicing physician, the local tuberculosis association, and the public, supplemented by such services from the State Department of Public Health and its sanatoria as may be necessary and available.

2. By making freely available to physicians modern diagnostic facilities, to increase the reporting of tuberculosis and bring patients to the sanatoria at a stage when a majority instead of a minority could benefit.

3. To provide the practicing physician with adequate facilities for the diagnosis of tuberculosis in his practice, without taking away from him the responsibility for such diagnosis or treatment.

REFERENCES

1 Zacks, David: What we have learned from the ten year program in Massachusetts. New Eng. J. Med. 204: 1037-1039 (May 14) 1931.
2 Gass, R. S., and Bishop, E. L.: Tuberculosis control in Tennessee. J. A. M. A. 97: 843-846 (Sept. 19) 1931.
3 Personal communication.

THE MAINTENANCE OF HEALTH WORK BY THE COMMONWEALTH FUND

(Continued from Page 241)

region the hospital has begun to experiment with family membership certificates, payable in small instalments, which entitle the holder to a rebate up to the paid-in value on any charges which he may incur for hospital service during the life of the certificate.

The training of psychiatrists also received attention and $334,252 was appropriated for this purpose.

The report indicates that the donors of the fund of $36,200 to the Massachusetts State Department of Health for the continued study of pneumonia are well satisfied with the work that is being done under this appropriation. The Department of Health has provided fourteen centres in various parts of the State for diagnostic and consultation service to physicians.

JAMES JACKSON AS A PROFESSOR OF MEDICINE*

BY GEORGE R. MINOT, M.D.†

INTRODUCTION

THE turning point in clinical medicine from idealism, speculation and theory to accurate and close observation came with the Hunters and Heberden, coincident with the American revolution, so that when James Jackson received the degree of Bachelor of Physic (B.M.) from Harvard in 1802 the times were ripe for the development of modern medicine.

The late Dr. James Jackson Putnam, Professor of Diseases of the Nervous System in the Harvard Medical School, published in 1905 a memoir[1] of his grandfather, Dr. Jackson, which has supplied me with information concerning the Second Professor of the Theory and Practice of Physic at Harvard University[2]. A few unpublished facts, however, will be presented in this sketch.

EARLY PROFESSIONAL LIFE

Doctor Jackson's medical education commenced in his senior year at Harvard College when he attended lectures given by the medical professors. There followed two years of pupilage with Dr. Edward Augustus Holyoke of Salem, a remarkably able practitioner, and during this time Jackson took the regular course of medical school lectures. He went to London in October, 1799, and returned about a year later. There he studied with Astley Cooper, Woodville, of fame in connection with smallpox vaccination, and other influential men. In London he renewed and strengthened his friendship with John Collins Warren who in 1815 succeeded his father, John Warren, the founder of the Harvard Medical School, as Professor of Anatomy and Surgery. These two young men remained intimate friends throughout life, and their names are united with the development of many progressive accomplishments. For an American of the day Jackson's medical training was excellent and furnished him with sound knowledge to become a professor. As was the custom of the time he started practice one and one-half years before he received his B.M. degree. During his earlier years of practice Jackson served as a physician to the Boston Dispensary and grew in prominence, partly because of prestige from utilizing the new vaccine virus directly after Waterhouse first employed it in this vicinity. In these early years he was incessantly busy studying, caring for patients and aiding the development of various public medical measures. With J. C. Warren he was largely responsible in 1803 for furthering the organization of the Massachusetts Medical Society, and in 1808 for preparing its pharmacopoeia.

Surprise is indicated in some publications that there was a delay of seven years after graduation from the Medical School before Jackson received the degree of Doctor of Physic (M.D.). He received it, however, in 1809 or as soon as was possible. It is not well known that prior to 1811 the degree of Doctor of Medicine (Doctor in Physic) was granted to Bachelors of Physic of seven years' standing, who showed evidence of capacity and presented a satisfactory dissertation[3]. Jackson was one of six men out of 52 graduates before 1811 who received the degree in this manner. His inaugural dissertation for this degree is a scholarly arraignment of the Brunonian system, which went the way of all theories of medicine, and the thesis indicates his ability to contrast the uselessness of theory with the advantages of facts based on accurate observation.

DEVELOPMENT OF HARVARD MEDICAL SCHOOL

Both Jackson and J. C. Warren on their return from Europe saw the need of clinical teaching as a sound basis for practice. John Warren had thought much about medical education and he, together with his son and Jackson, was continually considering and discussing the subject. One likes to believe that John Warren's copy of John Morgan's book "Discourse upon the Institution of Medical Schools in America" (1765), which is now in the Harvard Medical School library, added stimulus to their thoughts. Jackson's most distinct contribution to the teaching of medicine at Harvard was that he succeeded in making the authorities recognize that a hospital used for teaching was essential to a medical school, and that one used for this purpose afforded the best treatment of patients. This idea was expressed later in a circular letter dated August 20, 1810, which Jackson and J. C. Warren signed and sent to leading citizens making "an eloquent appeal" for the establishment of what became The Massachusetts General Hospital. The conception of this hospital was due probably in part to the thoughts expressed by John Warren to his son and Jackson[4].

Cambridge, where the "Medical Institution", as the school was then called, was located, was far from any existing or anticipated hospitals.

*Presented in abstract at a meeting held at the Harvard Medical School, December 20, 1932, to commemorate the one hundred and fiftieth anniversary of the founding of the Professorship of the Theory and Practice of Physic at Harvard University.

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Waterhouse, the Professor of the Theory and Practice of Physic, was satisfied with the status quo and did not want to teach in Boston so that the clinical department "was languishing for lack of modern methods and young blood". The Corporation of Harvard College, influenced especially by the Warrens and Jackson, saw the importance of the close association of hospital and medical school. After some difficulty they obtained permission in 1809 for students to be taught at the Boston Almshouse situated on Leverett Street, although there were very few patients. This innovation soon was considered to have improved the care of the sick which was natural enough as the two leading Boston physicians, Warren and Jackson, became respectively attending surgeon and physician. Clinical instruction from 1809, until the opening of the Massachusetts General Hospital in the autumn of 1821, was conducted especially at the Almshouse, but also at the Marine Hospital in Charlestown and the Boston Dispensary.

An ordinance of the Corporation, confirmed by the Honorable and Reverend Board of Overseers July 23, 1810, effected the establishment of a new professorship of clinical medicine with the duties to be performed in connection with a hospital. Jackson was elected promptly to this chair. In the college records the title is referred to sometimes as clinical professor of medicine and more often as professor of clinical medicine, the latter title being used at the time of his induction. This is interesting in view of the clear-cut distinction between these titles at the present time.

In 1812 Waterhouse resigned and Jackson, at the age of 35 years, was elected to The Professorship of the Theory and Practice of Physic, holding the chair until 1836, then becoming Emeritus until death, August 27, 1867. The chair of clinical medicine created for Jackson was not filled until many years later and Jackson taught unaided for 20 years, or until 1832 when John Ware was appointed to assist him. On April 6, 1817, Jackson was appointed Physician to the Massachusetts General Hospital and resigned in October, 1837, but remained consulting physician to this institution which he and Warren had founded.

In spite of opposition, apparently headed by Waterhouse, the Medical Institution of Harvard University moved to Boston in 1810 and had temporary quarters at 49 Marlborough Street (about where 400 Washington Street is today) where the Warrens had conducted private classes since 1805. It was there that Jackson in 1810 gave his first medical school lectures. In 1815 the building on Mason Street was opened and in recognition of the grant from the state legislature, which had been obtained chiefly by Jackson's efforts, the new building was named the Massachusetts Medical College.

ACCOMPLISHMENTS AS PROFESSOR; COMMENTS ON CHARACTER

Jackson's accomplishments as a professor of Medicine are synopsized in part in a vote of the Harvard faculty on June 4, 1836 after he had tendered his resignation as Professor. The record reads "That the faculty recognize with gratitude the labours of Dr. Jackson in removing the medical school to Boston, in obtaining a building for its accommodation, in his lectures in Theory and Practice and on clinical medicine and in effecting the establishment of the Massachusetts General Hospital and connecting it with the Medical School. . . ."

In addition as professor he saw the importance of the diffusion of knowledge and the prevention of disease. Both John C. Warren and Jackson were largely responsible for the inception of the *New England Journal of Medicine and Surgery.* The first volume of this *Journal* was published in 1812 and the first paper is by John Warren on "Remarks on Angina Pectoris," the second by James Jackson, "Some Remarks on Morbid Effects of Dentition." This latter article was reprinted 16 years later in the first volume (1828-1829) of the succeeding journal, namely *The Boston Medical and Surgical Journal* because, as Jackson wrote, of "repeated applications to the author from different quarters". His contacts with the Board of Health, as for example in relation to smallpox vaccination early in his career, the report written for the Massachusetts Medical Society on cholera and the arrangements made for his son to publish case records of this disease observed in Paris[5], illustrate some of Jackson's efforts toward the prevention of disease. His scientific clinical observations and treatment of patients based on physiological principles and experience further indicate his character as a professor of medicine. Jackson's publications testify to shrewd observation and methodical study and "his case records at the hospital stand as models of their kind"[1]. Throughout life he stressed the importance of diet and regimen and the simplification of the treatment of disease, and he was a master at taking care of the patient.

Jackson's character has been sketched numerous times. Oliver Wendell Holmes[6] in an unpublished biographical sketch of Jackson has written:—"He meant if any human name ever did, truthfulness, sincerity, kindness, sympathy, skill and judgment." . . . "He was beloved as a young man and revered as an old one." "The secret of his success lay in a combination of many conditions of which the one I would name first was that he truly loved his profession." Jackson had, Holmes continues, "an ardent thirst for knowledge and an earnest desire to promote the welfare and happiness of all mankind". "By these qualities accompanied by great sweetness of manners he acquired the love and

esteem of all good men in a degree which perhaps very few have experienced." E. H. Clarke[7] considered that "to a large extent the medical profession of New England was moulded by his teachings and example . . . a real contribution to practical medicine." Mumford[8] wrote similarly, "no other American has left behind him so wide and sound a reputation as a practitioner of medicine."

ACTIVITIES AT SCHOOL AND HOSPITAL

Each year as professor until 1832, when Ware was appointed adjunct professor to assist him, he delivered lectures every week day for three months until 1831 when the course was extended to four months. The lectures began the third Wednesday in November until 1827 when they commenced the third Wednesday in October, except for the year 1830. In addition he often met the class for a voluntary lecture each week and on another afternoon he conducted a voluntary examination on the subjects discussed the preceding week. Jackson sometimes took students to see private cases. The exact arrangements regarding bedside teaching are not clear, but the "pupils" were taken at first one to three times a week to see patients, but not long after the opening of the Massachusetts General Hospital he conducted there a daily medical visit for two hours which students attended. Holmes considered "to visit with Dr. Jackson was itself a medical education"[6]. The lecture followed at 11 a.m. four times a week, and at 3 p.m. two days a week. Although at first there were about ten and later about 20 graduates a year during Jackson's active teaching career, he refers in a letter[1] written in 1822 to having had formerly 50 and recently about 100 men attend his lectures, a quarter of whom did not pay! As professor he also gave in Cambridge a course of lectures on physiology and hygiene, at first for the "senior sophisters," and later for the seniors and juniors of the college.

The medical school in these early days was largely a private venture of the professors. The fees from the students went into the pockets of the individual teachers, but the members of the faculty apparently paid a considerable portion of the amount required for upkeep of the building. The teachers also gave courses independently of the regular ones of the school[9] so that the students could obtain a proper amount of knowledge, and Jackson was no exception to this rule. In 1830 his name heads the list of instructors in a "Private Medical School" as shown by an advertisement in the *Boston Medical and Surgical Journal.*

JACKSON AS A TEACHER

In order to assist his students he prepared, as he wrote, "with a good deal of labour . . . an imperfect syllabus of my winter course of lectures." This was published in 1816 and was bound interleaved with blank pages for notes. To the student this book seems to have been perfect as suggested from the notes in the copies I have seen. He sometimes gave a lecture on medical books, and some of his remarks about them would be worthy of a student's attention today; for example, some of those in 1817 are "Percival's medical ethics should be carefully read." . . . "Periodical works (listed below) are to be read with regularity"[10]. This syllabus contains a section on "Hygiene" introduced to accommodate the students who took his summer course of lectures delivered in Cambridge. The first 35 pages were bound with a different title page for the benefit of the undergraduates and also published in 1816.

"For the use of the medical students in Harvard University" he published a "Text Book of a Course of Lectures on the Theory and Practice of Physic" in two parts, the first in 1825, the second in 1827. This was done because he felt a textbook to be more expedient than a syllabus, and he notes in the preface that a textbook permits him to shorten his course of lectures and devote more time to bedside teaching, "since much may be read which would otherwise be stated in the lecture room." These thoughts have a modern flavor. The first part of the textbook concerns especially the physiological basis of medicine, the second the practice of medicine, in the preface of which we read, "so much will be related as will aid the student materially in following the course of lectures and facilitate very much the labour of taking notes." Good's physiological system of nosology is followed and shows the elaborate classification of disease so prevalent at the time. Dr. John F. Fulton has brought to my attention that Jackson's book appears to be the first American textbook of medicine built on a solid physiological foundation and that he used the term physiology and not the alternatives of "institutes of medicine," "animal oeconomy" or other similar phrases, which were then still in vogue as an appellation for the study of function.

Jackson was considered a conspicuous and popular teacher but not a brilliant one. He taught the practical as well as the scientific side of medicine, had great patience, and was always very sympathetic. "His patient was the man and not the disease." Decisions were rendered without dogmatism and he always insisted on complete and accurate records of cases. He inspired others and had zeal for scientific truth, so that he gained and held the confidence of his pupils, a number of whom became prominent, such as Oliver Wendell Holmes, Jacob Bigelow and Henry Ingersoll Bowditch. In a letter[11], dated March 5, 1833, to Bowditch at Louis' clinic in Paris, Jackson wrote, "my ears are old and were not trained early . . . Holmes has attended to auscultation more than any other

of my (recent) pupils and I often call on him to help me with my ears." This and other remarks indicate the difficulty he had with the then new stethoscope. In this unpublished letter Jackson comments on a case with a very thick adherent pericardium, and says that during life he noted "the signs very different from a common adhesion . . . that the heart though acting feebly seemed to be lifting some firm flat body." He continues, "if I can master courage I shall write on this and other cases and print them", but he never did so. His interest in pericarditis is also reflected in lecture notes of this date. One wonders if Jackson stimulated Holmes to consider the condition because an unpublished manuscript[12] by Holmes, dated January 12, 1836, written apparently as a requirement for his degree of M.D., is entitled "A Dissertation on Acute Pericarditis." Holmes observed cases at La Pitié under Louis, who certainly made an impression on him, and he utilized for control data as he writes, "cases . . . in the series collected by my dearly remembered friend and fellow student Dr. Jackson." (The cases are published in "Memoir of James Jackson, Jr., M.D. with Extracts from his Letters to his Father and Medical Cases Collected by Him"; by James Jackson, M.D. I. R. Butts, Boston, 1835.)

Although Jackson advocated a year of study abroad and saw the value of scientific medicine he did not believe, however, that it was wise for young Americans to devote for some years after graduation their whole time to observation and study in clinical medicine before entering practice; a course Louis advised for his son. This was because satisfactory opportunities in America were lacking and because of his belief that the novel idea would not permit his son to gain the confidence and respect of his American colleagues. Regarding this matter he[11] wrote Bowditch "The course he (Louis) proposes if duly followed will lead to more precision in medicine than has ever been known." Other letters also indicate similar thoughts on the subject which seem correct today when such a career is often deemed wise.

PUBLICATIONS REFLECTING WAYS OF TEACHING AND THERAPEUTICS

Jackson wrote as he taught, saying the most useful things in the simplest way. His style was familiar but never became undignified. His best known publications written long after he resigned his professorship, such as "Letters to a Young Physician" (1855 and four subsequent editions), "Another Letter to a Young Physician" (1861) and "On the Utility of Medicine" (1861) are full of practical guidance for the student today and reflect Jackson's own personality and ways of teaching. Various points then new were brought out or enlarged upon in these later writings. His publications illustrate his ability for exact observation and logical reasoning, his understanding of the proper methods of collecting clinical and anatomical facts and his recognition of the importance of not forming opinions from general impressions. His scientific approach to the study of clinical problems by use of the statistical method and control observations, as developed in Louis' clinic, is splendidly brought out in a report made in 1838 on 303 cases of typhoid fever at the Massachusetts General Hospital during the first 14 years of its existence.

Jackson's later publications illustrate well his sympathetic insight into human nature which is reflected in the therapeutic procedures he used throughout life. From youth he was impressed with what Robert Boyle in the seventeenth century was one of the first among modern writers to discuss, namely the healing power of nature and the advantages of the use of simple medicines; but Jackson, of course, went much farther and recognized as a student the shortcoming of ancient and much of the then modern therapeutics. In letters he often wrote, as he[11] did to Bowditch in 1833, such remarks as—"The physicians of this country give too much medicine. If better acquainted with the natural history of disease they would give less."

Jackson recognized the frequency and importance of functional disorders and that they were to be corrected by rest, exercise, diet and the unraveling and rearrangement of social and personal affairs, and indeed he saw clearly the importance of these sorts of therapy for any patient. At times he even wrote out such directions for his patients. He appreciated that outdoor life for individuals with phthisis was much more valuable than drugs, although he failed to consider the importance of diet in the treatment of typhoid fever while he studied the value of various substances. The first paper of Jackson's which gives his title as "Professor of Theory and Practice of Physic" is "On the Properties of Life" (1816). It has a physiological and pathological background and among other matters concerns the importance of functional disorders of the nervous system in the production of symptoms.

Jackson never attained the therapeutic nihilism of Jacob Bigelow and, as was the custom of the times, used purgatives and therapeutic procedures in ways that would appall us today, but he was always considered very moderate in his use of drugs. He prescribed cod liver oil and, according to legend, with whiskey, but since these two ingredients do not remain well mixed he commonly found the whiskey gone and the cod liver oil in the bottom of the glass!

The self-limited nature of disease Jackson

recognized early in his career and he thought and acted in accordance with this new light. He was delighted with Bigelow's and Holmes' publications criticizing many forms of therapy and indicating the value of reliance on nature's ways, regimen and diet. When these two men were his pupils Jackson may indeed have laid in their minds the foundations for these important communications.

Jackson's publications are relatively numerous and not all appear in published lists of his papers. Among them, there is a classic description of a disease—alcoholic neuritis. This paper published in the *New England Journal of Medicine and Surgery*, XI, 351 (Oct.), 1822, is entitled "On a Peculiar Disease Resulting from the Use of Ardent Spirits" and the running title on the top of the pages is "on Arthrodynia a Potu". The main features of this affection are correctly noted including that the functions of the stomach are impaired, and a comment under treatment reads, "animal food is most useful", which is interesting in relation to observations on diet in this disease now being conducted at the Boston City Hospital. Jackson certainly recognized this condition prior to 1815 because students' lecture notes of this date contain a description of the disorder under the heading "A Painful Affection of the Lower Extremities." He evidently was not aware that J. C. Lettsom had described the condition before him. Indeed Lettsom's classic published in 1787, which Dr. Henry R. Viets brought to my attention remains essentially unknown probably because it appears in the middle of an article entitled "Some Remarks on the Effects of Lignum Quassiae Amarae." Memoirs of the Medical Society of London, 1:128, 1787.

The paper "On Rheumatism in the Heart, Eyes & C" published in 1816 illustrates his acquaintance with medical literature and his many non-medical books testify that he read widely. This paper, written only six years after William Wells' original account of "Rheumatism of the Heart", records the pronounced irregularity of the heart that may occur during rheumatic fever; a point not mentioned by Wells.

In 1831 Jackson[13] discussed in the *Boston Medical and Surgical Journal* whether animal decomposition is productive of fever, and although he was not certain, it is evident that he considered it relatively unimportant and felt sure that graveyards in the centre of cities were wise because these open spaces gave to the inhabitants air and sun.

Full consideration of his papers will not be given here, but the communications mentioned indicate his scientific attitude toward clinical medicine. Other papers which he wrote during his professorship are significant, such as the one on dentition in which, under a discussion of the diarrheas of infancy, there is given the first known autopsy reports on such cases.

CONCLUDING REMARKS

Jackson was held in such great esteem by the faculty that in 1858, or nine years before he died, they "seriously considered" that the school be given his name[2]. This was some time after the school had been established on North Grove Street, but when it was still known as the Massachusetts Medical College of Harvard University. But instead, to do him honor the Corporation endowed and named the chair of clinical medicine, The James Jackson Professorship of Clinical Medicine.

Probably the greatest crisis of Doctor Jackson's life came with the death of his favorite son, James Jackson, Jr., at the age of 25 years, March 27, 1834. This young man had shown himself to be an able physician and his short career was rich in results as is impartially depicted by his father in a memoir first published in 1835 and reprinted in 1836 and 1841. Besides this son, six of Doctor Jackson's 38 male descendants, who lived or are living over 21 years of age, were or are Doctors of Medicine and one of his 33 female descendants over 21 years of age holds the degree of M.D. There are 41 of his great-great-grandchildren alive today and at least ten of his descendants in the next generation. These descendants and Harvard University may well be proud of the second Hersey Professor of the Theory and Practice of Physic, who certainly aided materially in the development of practical and scientific medicine in this community.

REFERENCES

References to information given in this paper will be found in many instances in the first two books recorded below.

1 Putnam, James Jackson: A Memoir of Dr. James Jackson. Boston and New York, Houghton Mifflin and Company, 1905.

A list of Jackson's publications are given which, although not entirely complete, will suffice for most references. Thus bibliographic references to Jackson's papers are seldom necessary to give below and some bibliographic matters appear in the text which are not recorded by Putnam.

2 Harrington, Thomas Francis: The Harvard Medical School, a History, Narrative and Documentary; edited by J. G. Mumford. 3 vols. New York and Chicago, Lewis Publishing Co., 1905.

3 Morgan, Morris H.: The First Harvard Doctors of Medicine. Publications of the Colonial Society of Massachusetts. 12: 312, 1909.

4 Warren, Edward: The Life of John Collins Warren. 2 vols. Boston, Ticknor and Fields, 1860. See especially vol. 1, pp. 98 and 99.

5 Jackson, James Jr.: Cases of Cholera Collected at Paris in the month of April, 1832 in the wards of MM. Andral and Louis at the Hospital La Pitié. Boston, Carter Hendee & Co., 1832.

6 Holmes, O. W.: A Biographical Sketch of Dr. James Jackson. Undated MSS. in Holmes Collection, Boston Medical Library, presented May 30, 1876.

7 Clarke, E. H.: Practical Medicine in "A Century of American Medicine" by various authors. Philadelphia, Henry C. Lea, 1876.

8 Mumford, James Gregory: A Narrative of Medicine in America. Philadelphia and London, J. B. Lippincott Co., 1903.

9 Viets, Henry R.: A Brief History of Medicine in Massachusetts. Boston and New York, Houghton Mifflin Co., 1930, pp. 133-134.

10 Notes by Thaddeus William Harris and by an unknown student on Jackson's lectures 1817-1818 in copies of "A Syllabus of the Lectures Delivered at the Massachusetts Medical College to the Medical Students of Harvard University by James Jackson," in possession of George R. Minot.

11 Unpublished letter in possession of George R. Minot.

12 Holmes, O. W.: A Dissertation on Acute Pericarditis, Jan. 12, 1836. Unpublished MSS. Holmes Collection, Boston Medical Library.

13 Letters to Editor signed J. J. Whether animal decomposition is productive of fever. Boston Med. & Surg. Jour. 3: 674 and 704, 1831.

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

THREE CASES OF POSTOPERATIVE FATALITY

CASE 19051

UROLOGICAL DEPARTMENT

PRESENTATION OF CASE

DR. FLETCHER H. COLBY: This is the case of a seventy-four year old man who was referred from the Outpatient Department complaining of the typical symptoms of bladder calculus.

For the past six months he had had a good deal of pain and urgency on urination. X-ray in the Outpatient Department showed several shadows in the bladder region which were suggestive of calculi. On cystoscopy stones were definitely seen.

In the hospital cystoscopic examination showed two or three fair sized stones; as I remember them the largest was perhaps 2.5 centimeters in diameter. There was no marked enlargement of the prostate. The residual urine was very small, less than half an ounce. The urine was infected, as is true in all these cases. Because there was no enlargement of the prostate and little residual urine it was thought best to crush the stones with a lithotrite rather than to do a suprapubic operation. He was seventy-four years old and not in particularly good general condition. He had marked general arteriosclerosis.

The patient was given spinal anesthesia, a lithotrite was passed and the stones were crushed. It often is quite a long process to crush the stones and evacuate all the fragments at one time. Frequently the operation has to be done more than once, and that was true in this instance. The patient, we thought, had had enough. The stones were crushed and most of them were evacuated, but we knew that a few small fragments were left behind. One has to be exceedingly gentle in the manipulation because of the possibility of damage to the bladder mucous membrane with the jaws of the lithotrite, which are of necessity extremely powerful in order effectively to crush stones.

The patient stood this operation very well. He had a chill the following day with some elevation of temperature, but on the whole his condition after that was more or less what one would expect. There is inevitably a certain amount of stirring up of infection from the manipulation and from the frequent passage of fairly large instruments through the urethra to wash out the fragments of stone.

After the operation the temperature rarely went above 100°; after about two weeks it came down to normal. The patient was up and about feeling well. Two weeks after the operation we did another cystoscopy to see how much in the way of small fragments remained. There were three or four rather small pieces of stone which we crushed with a small lithotrite. This was done with considerably less trauma than the previous operation. As I remember it his urine at the end of the operation was only faintly blood tinged. A catheter was left in the urethra and he was sent back to the ward.

After this operation his temperature chart showed no elevation; sepsis was not at all marked. Four days later the catheter was removed and the patient was up and about feeling perfectly well and was to be discharged that day.

That morning he went to the toilet. While in the process of moving his bowels he became faint and called for help. He was seen immediately. His pulse was very rapid and weak and he was having a good deal of difficulty in breathing. He was put to bed. A note was made that the neck veins were not distended. Shortly before death he had a good deal of apprehension of death. He had no localized sharp pain. He died in a few minutes.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Coronary thrombosis.
Vesical calculus.
Arteriosclerotic heart disease.

ANATOMIC DIAGNOSES

Vesical calculi.
Multiple pulmonary emboli, with infarction.
Bronchopneumonia, slight.
Thrombosis of the periprostatic veins.
Arteriosclerosis, aortic, marked.
Chronic vascular nephritis.
Prostatic hyperplasia, slight.
Cholelithiasis.
Cholesterosis.
Melanosis of the colon and appendix.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: The autopsy in this case showed many pulmonary emboli, all quite small ones, with a great many areas of hemorrhagic infiltration in the lung. The source of these emboli without doubt was a rather generalized thrombotic process in the periprostatic

plexus of veins. Thrombi in that plexus are a very real hazard in all operations on the male genito-urinary tract. We have had a very considerable number of fatal pulmonary emboli in that particular group of cases. We have also picked up at routine autopsy cases of very marked thrombosis of these veins in men who have never had urinary symptoms and never any operation on the genito-urinary tract, so that I am quite sure that the development of thrombosis may precede any operative procedure. In this case the operation was done entirely through the urethra and was not a cutting operation at all, and nevertheless we have a fatality from pulmonary embolus.

It is interesting that at least one of these infarcts in the lung was not a fresh one, since the histologic examination showed a fairly definite organization process. So he may have had emboli in successive crops, one or more the first time and then a more or less synchronous shower of emboli which formed the terminal event. This obviously would have been one type of case in which an embolectomy would have been quite impossible. We are dealing with multiple small emboli that pass rapidly out to the periphery of the lung. If one had opened the pulmonary artery through the standard operative incision one would have found nothing within reach of the forceps.

Dr. James C. White: In connection with the number of emboli that we may see before the fatal one hits the patient, I think that in the two or three previous autopsies I have seen where there have been very massive ones causing rapid death, those have been the only emboli demonstrated at the autopsy. We can certainly have the other process taking place, numerous small emboli producing infarction in a postoperative case without a fatal termination. We have two in the ward now. One is a woman who had a total hysterectomy done. Fourteen days afterward, just as she was going to get out of bed, she had slight pain in her chest, slight elevation in temperature and bloody sputum. The other case was one on which I operated. It was a young woman with mitral stenosis and auricular fibrillation. The medical men asked me to do a suspension and sterilization. At the end of nine days, when she was having a very good convalescence, she developed cyanosis and dyspnea. In the course of ten days she had two or three infarcts, one in the base of the right lung, with bloody sputum and high temperature. So far she has gone a week without any more. I want to bring that out as the other side of the picture.

Dr. Mallory: We have all seen in retrospect a good many cases of undoubted pulmonary embolism that have not been fatal. The occurrence of a small embolus and infarction does not necessarily mean that a larger embolus must follow.

CASE 19052

Surgical Department

Presentation of Case

Dr. A. William Reggio: This is the case of a man of forty-five who always had been quite an athlete.

His story is that he had been playing tennis and thought he had strained his left side, because the next day he had considerable pain on that side. The next day he complained of more pain on the left side and had a temperature of 100°. He was seen by a medical man, who found a temperature of 100° in the afternoon and 101° in the evening and a negative urine. The patient was extremely nervous and apprehensive. He felt much better next day and went to business. The following morning he had a copious movement of the bowels and at the same time pain in the left costovertebral angle. His doctor found a temperature of 97° and could find nothing wrong with him. The next day the patient felt rather ill. At half past ten a. m. he again had a large movement of the bowels and the pain in the left costovertebral angle recurred. At that time the temperature was 102°, the pulse 80, the urine negative and the white cell count 6,000.

About half past five in the afternoon I saw him in consultation. We examined him very carefully. He was extremely nervous and apprehensive. He had been drinking quite heavily for some time previous. The temperature was 103.8°, the pulse 108. There was extreme tenderness over the tenth, eleventh and twelfth ribs, left. The abdomen was soft, non-tender. The prostate was normal. There was no tenderness in the left flank, but there was some tenderness in the left costovertebral angle. There was slight nausea but no vomiting. He was perspiring profusely. The tongue was coated.

I was not asked to see him again for a week. Then the medical man reported that his temperature had been running up and down, varying from 97° to 103°, and his white cell count had slowly risen to 12,000, 16,000 and 19,000. The patient had been advised to go to a hospital but had steadily refused.

He finally entered the hospital the day I again saw him, two weeks and a half after the onset. At that time we found that he had a temperature of 103° and a white cell count of 23,800. The urine was negative. There was marked tenderness high in the left costovertebral angle just under the ribs. There was no abdominal spasm and no tenderness in the abdomen. We still felt that it was probably a perinephric thing, but another genito-urinary consultant said absolutely that it was not. We knew there was pus here somewhere that needed to be let out. We did not know its source, so we asked for a barium enema. As we watched

this over the fluoroscope, the barium went up the sigmoid and the descending colon to the splenic flexure, where suddenly three fingers of barium shot out into a gaseous mass at the splenic flexure and then the rest of the enema went on across the transverse colon.

He was immediately operated upon. His convalescence was not remarkable. He was a very difficult patient to handle, being so apprehensive, and he had a mild attack of delirium tremens during this time. He had constant complaints for which we could find no adequate cause. On the twelfth day after operation things were going so well that he was allowed to get out of bed and sit up in a chair for a while. He cheered up after that. The next day he was in a chair for about half an hour. During the afternoon he suddenly complained of pain in the right chest. He was examined very thoroughly but no cause for it could be found. Since he had had a little jog in his temperature all the while we did not think this meant an embolus. In retrospect, of course, we see that it did; but we did not consider it so at the time, and he continued to sit up in a chair and his temperature came right down again.

On the seventeenth day after operation he had been up as usual. Half an hour after returning to bed and as he was lying perfectly comfortably he complained of sudden pain in his right chest and epigastrium, went into very rapid collapse and in about three quarters of an hour was dead.

Clinical Discussion

Dr. Reggio: At the time of my first consultation we considered perinephric abscess. He was seen by a genito-urinary consultant, who felt that it was not a perinephric abscess. The other possibilities considered were diverticulitis, splenic infarct, our old friend the appendix, renal cortical stone and acute enteritis.

When we saw the result of the barium enema we knew we must be dealing with a perforated diverticulitis, which we had had in mind but could not prove without x-ray.

We operated with an incision parallel with the lower border of the left ribs. We broke into an abscess and evacuated six or eight ounces of colon pus and gas.

Our diagnosis at the time of the final attack was pulmonary embolus. It came on suddenly about twenty minutes after he had been up as usual and back in bed, feeling perfectly comfortable. The wound was doing very well. He never complained of tenderness in the legs. There was no question of venous thrombosis. We had the embolectomy set ready, but there was no one there who had ever done an embolectomy so we could not do it.

I wonder how we could have made a diagnosis of perforated diverticulum sooner. It was an atypical diverticulitis story. He had never had any previous intestinal symptoms of any kind and had always been perfectly healthy. Very frequently we get a story of intestinal upsets in diverticulitis cases, but there was nothing here to lead us directly to it. The case makes one stop and think that possibly if we had been allowed to make a complete study of him sooner we might have avoided the serious trouble. In view of his absolute refusal for ten days to come to the hospital I do not see how we could have made the diagnosis earlier.

A Physician: Was his last attack of pain on the right or the left side?

Dr. Reggio: On the right.

Dr. James C. White: How much chest pain did he have?

Dr. Reggio: If we had not known him we should have said it was excruciating, but since he was so high-strung we discounted that to some extent. There was no distention. A quarter of a grain of morphia quieted him.

Dr. White: How much cyanosis did he have?

Dr. Reggio: That came on in about ten minutes.

Dr. White: That is the type of case Dr. Churchill and I have been looking for for two years, and we were both away on our vacations at the time.

Dr. Arthur W. Allen: Was there any elevation of his leukocyte count after his supposed first embolus?

Dr. Reggio: It was 19,400 on the fifth day after operation.

Have you any suggestion as to how the diagnosis of perforated diverticulum could have been made sooner, Dr. Allen?

Dr. Allen: No. As a matter of fact I am sure that he was better off as far as any operative procedure was concerned in having it late rather than early.

Dr. Reggio: That is true, because the abscess was entirely walled off.

Dr. Aubrey O. Hampton: The plain film was very interesting. I think the gas in the upper left quadrant is very unusual. We could be fairly certain that it was not in the colon because we have the colon outlined there fairly well with gas. We can tell that the right half of the colon was dilated. The gas was outside the colon and not in the small bowel, because no loops of small bowel are seen. So we had enough to make the diagnosis on the flat plate. We also had a fixed left diaphragm to make it even more definite that an inflammatory lesion was present below and in contact with it.

Clinical diagnoses (from hospital record)

Perforated splenic flexure, cause unknown.
Left subdiaphragmatic abscess.
Pulmonary emboli.

ANATOMIC DIAGNOSES

Diverticulitis of the splenic flexure with perforation.
Diverticula of the sigmoid.
Operative wound: incision and drainage of retroperitoneal abscess.
Retroperitoneal abscess, healing.
Pulmonary embolism and infarction.
Pulmonary atelectasis, moderate.
Cardiac hypertrophy, slight.
Chronic rheumatic endocarditis, mitral and aortic, slight.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: At autopsy we found, of course, a massive pulmonary embolus. We also found well out in the periphery of the lung on the same side on which he had this very slight transient attack of pain a small, almost completely organized infarct which in estimated age corresponds very well with the history. It must have been present ten days or two weeks. The actual pleural pain with this attack lasted only about fifteen minutes, but it was very sharp during that time.

The retroperitoneal abscess had been very thoroughly drained. There was still a persistent sinus of course. The large intestine showed four extremely minute diverticula, one of which was in immediate relation to the abscess. With a little difficulty we were able to pass a probe through it from the lumen of the intestine to the abscess cavity. The other three diverticula were so small that we missed them on the first examination and it was only when we went back and looked much more carefully that we found them. They were so inconspicuous that we think it is very possible that we miss diverticula of this size in many routine autopsies. Unless the intestines were examined with extreme care they would not be noticed. Nevertheless one of them had perforated. There is no relationship between the size of a diverticulum and the likelihood of perforation, as far as I can tell. We often see large diverticula that never perforate and in people who have had no symptoms referable to them, and then we get a case like this with extremely minute diverticula and perforation.

An accidental finding of some interest considering his strenuous career in athletics was that he had a well marked rheumatic heart disease with a definite aortic lesion and a slight mitral one. With it he must in all probability have had a slight degree of both mitral and aortic regurgitation.

DR. WHITE: Did you find the source of his emboli?

DR. MALLORY: No, we did not.

DR. WHITE: Embolectomy has been done successfully now eight times in Scandinavia and Germany, but never in this country. The type of patient we want is a man not seventy years old, but a younger man like this who has a well marked embolus coming on an hour to a half hour before his fatal one. We have seen it only in this case and in one other, an appendectomy three years ago, before we had the instruments and were able to do the operation. In that case the symptoms were very similar to this. Under these circumstances we stand a very good chance of successfully removing the emboli and saving the patient's life.

DR. FREDERICK T. LORD: I have found in the records fifty-nine cases of pulmonary embolus in this hospital. One fifth died within ten minutes, one fifth within ten to twenty minutes, and the remaining three fifths after a longer period. This would presumably give time in three fifths of the cases to do this operation provided everything was prepared for its performance and the operator was at hand. It is very difficult to be certain of the diagnosis, which after all is a very important matter. The sudden complete occlusion of the pulmonary artery or both primary branches causes death within one or two minutes. Prolongation of life beyond this period may be taken to mean that the occlusion is incomplete. The total obstruction of one main division is compatible with life, but if it occurs suddenly is likely to be fatal on account of the strain on the circulation. In the less rapidly fatal cases there is the sudden onset of a sense of suffocation, anguish, dyspnea, precordial distress or pain, pallor followed by cyanosis, engorgement of the jugular veins and a rapid, weak, irregular or imperceptible pulse. The conditions with which pulmonary embolism is especially likely to be confused are painless coronary occlusion, postoperative shock, postoperative internal concealed hemorrhage and acute pneumothorax. It is unfortunate from the point of view of operation that with numerous scattered small emboli the symptom complex is the same and operation would be futile. There are four such cases, or about one in fifteen. in the hospital series. It is important to appreciate that the symptom complex is not distinctive and that inevitable errors in diagnosis may in consequence occur. These can to a large extent be avoided in the selection of cases for operation by a typical symptom complex, occurring after operation or delivery and with certain or probable thrombophlebitis of systemic veins or a history of preceding lung infarct. The operation should not be performed on patients with arteriosclerotic or hypertensive cardiac disease with congestive failure, sepsis, inoperable malignant disease, on the elderly or those with other conditions in themselves serious. I estimate, however, that in the hospital group of 59 cases there are eighteen, or about one in three, in which operation might have been done.

DR. ROY R. WHEELER: Most of us are accustomed to associate diverticulitis or complications

therefrom with the left lower quadrant. Here is a new kind of surgical abdomen and it appears to me important for us to appreciate that we must consider perforated diverticulitis anywhere in the abdomen.

DR. MALLORY: They become less and less frequent as one passes from the sigmoid around to the cecum, but they can appear at any point in the large intestine and also in the small intestine, although they are extremely rare there until one gets up to the duodenum, where they once again become common.

CASE 19053

ORTHOPEDIC DEPARTMENT

PRESENTATION OF CASE

DR. MARK H. ROGERS: A forty year old single Irish mechanic was brought into the Emergency Ward several hours after a fall. His chief complaint was pain in his left hip.

X-ray on entry confirmed the diagnosis of intertrochanteric fracture of the femur. Physical examination revealed no evidence of any other injury. The patient was a well developed and nourished man and denied any previous illness. Except for tenderness and slight swelling on the lateral aspect of the left hip there was no external evidence of injury.

The injured member was placed in traction in a Thomas splint. The traction was maintained for one week, after which time the leg was manipulated under avertin anesthesia and a plaster spica applied. Post-reduction plates showed good alignment of the fragments.

The patient remained in bed for eleven days and enjoyed an afebrile and uncomplicated convalescence except for occasional slight pain in his left knee. After he had been up in a wheel chair on the roof for about a week in a plaster spica, one morning at about ten o'clock he complained of discomfort in his epigastrium and left anterior chest, definitely accentuated by respiratory movements. The onset was gradual but the pain rapidly increased in intensity. He did not eat lunch. At two p. m. his temperature was 100.8° rectal. The white cell count was 20,300. There seemed to be rigidity and tenderness in the upper abdomen as well as could be determined by palpation under the cast. Examination of the chest was negative. The blood pressure was 95/75. One-sixth grain of morphia produced partial relief for two hours. At five p. m. his pain was definitely more severe. He stated that the pain seemed to arise in his epigastrium and pass upward through his chest to his shoulder and the left side of his neck to the vertex of his head. It did not radiate to the back or down the arm. At this time he vomited once. The vomitus was not remarkable. Examination of the chest by a medical consultant was negative. The blood pressure was the same as on entry to the hospital. The anterior part of the cast was removed. A rigid abdominal wall was disclosed. There was also moderate tenderness. The order of the rigidity was as follows: left upper quadrant, right upper quadrant, left lower quadrant, right lower quadrant. At five p. m. the temperature was 101° rectal, the white cell count 21,300. The urine was negative. Rectal examination was negative. There was no distention and peristalsis was normal.

Abdominal exploration under gas-oxygen anesthesia was performed and was negative except for adhesions between the spleen and the diaphragm.

A portable chest plate the following morning revealed beginning consolidation in the left lower lobe. The patient became rapidly worse. He became cyanotic. The respiration, temperature and pulse increased. Signs of consolidation were found at the left base. The patient died fifty-two hours after the onset of the acute episode.

The discharge diagnoses were intertrochanteric fracture of the left femur and left lower lobar pneumonia.

DR. AUBREY O. HAMPTON: This x-ray film of the chest shows dullness in the region of the left lower lobe, exaggerated by the position of the patient. The dullness is not sufficiently marked to warrant a diagnosis of complete consolidation. The film of the femur shows the ordinary intertrochanteric fracture.

CLINICAL DISCUSSION

DR. ROY R. WHEELER: I saw this man twenty-four hours after the onset of his chest pain. Of course I had a great advantage over the others in that the process was fully developed at that time. There was massive consolidation of the left base. He was rapidly going downhill and died about twelve hours afterwards.

DR. ERNEST M. DALAND: I saw this man at two o'clock on the day that this accident happened. At that time his symptoms seemed to be in his chest rather than in the abdomen. He was seen by Dr. Short at that time and nothing was found in his chest. There was very marked rigidity of his upper abdomen. We cut one side of his plaster spica, but there was nothing in the lower quadrant. At that time the symptoms were a little suggestive of coronary disease and we gave him nitroglycerin and then morphia with some relief. I saw him again between four and five o'clock. The effect of the morphia had worn off and at that time he was having more symptoms. Even then they seemed like pulmonary symptoms. The whole top of the abdominal part of the cast was taken off, however, at that time, and he was found to have very marked rigidity over the upper abdomen, less in the lower part and least of all over the ap-

pendix. Since the medical consultant could still find nothing in the chest we thought it wise to do an exploration, which we did under gas-oxygen and novocain.

The preliminary diagnosis was possible pancreatitis or perforated stomach. The pancreas and stomach were normal. Everything else was normal. The appendix was seen. The terminal portion was obliterated and the proximal half appeared normal. It was a very easy appendix to take out, and this was done. The abdomen was closed and the statement was made that it was a negative exploration. After the abdomen was closed the appendix was sectioned and the proximal portion was found to contain a drop of creamy pus about the size of the end of my finger. The appendix looked perfectly normal. I think this was purely an incidental finding. The bacteriology showed bacillus proteus. I think that had nothing to do with the rest of the process.

DR. CHESTER M. JONES: Was the spleen absolutely normal?

DR. DALAND: It was of normal size but adherent to the diaphragm. I remarked at the time that it would be a rather difficult spleen to take out.

DR. ROGERS: There is one note in the history as we look back. He was an uncomplaining man, but about three days before this attack he did complain of a moderate amount of pain down on the left side of the knee or in that region, so much so that I said I hated to cut the cast but there might be a little pressure over that knee.

DR. WHEELER: In looking back, we possibly should have been more impressed by the phrenic distribution of this pain.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Intertrochanteric fracture of the neck of the left femur.
Lobar pneumonia.

ANATOMIC DIAGNOSES

Intertrochanteric fracture of the neck of the left femur.
Thrombosis of the left femoral and left saphenous veins.
Pulmonary embolism.
Infarction of the lower lobe of the left lung.
Diaphragmatic pleurisy.
Collapse of the upper and middle lobes of the left lung.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: We found in this man again a pulmonary embolus. Every branch of the pulmonary artery was filled with rather firm round clots which were not adherent except for one clot which was rather separated from the rest and rested in the branch leading to the left lower lobe. That was definitely though very slightly adherent. The left lower lobe itself was enlarged, deeply engorged, reddish black in color, and on its inferior surface there was fibrin; a definite diaphragmatic pleurisy. That lobe undoubtedly represents a total infarction of recent onset, certainly not of more than forty-eight hours' duration, and I think is quite consistent with the onset of his first acute symptoms.

The remaining lobes of the lung were rather markedly collapsed but showed no evidence of infarction. Of course a number of hours must pass after the lodging of a clot before evidence of necrosis appears.

In this case we believe we were able to find the source of the embolus, because when we dissected down his femoral vein on the side where his fracture was we found a massive thrombosis of the left femoral and left saphenous veins. I think there can be no question that the embolus broke off from that, and since that was on the same side as the fracture and immediately overlying the site of the fracture I strongly believe that the two were connected.

DR. JONES: I should like to ask how long after a fracture one can get an embolus. We had a case last spring that was very similar to this, with a fracture of the femur and a pulmonary embolus the day after the patient got up, five and a half weeks after the accident. That patient had epigastric pain very much like this man's.

DR. FREDERICK T. LORD: I remember a patient who fell from his horse and injured his left ankle. A week later he had pain in the chest and expectorated bloody sputum. His physician made a diagnosis of intercostal neuralgia. Seven weeks after the injury he again had pain in the chest without cough or sputum and another physician suggested the possibility of tuberculosis. Eighteen weeks after the injury after playing court tennis he had pain in the right shoulder, the right side of the neck and the right side of the chest with cough and bloody sputum. There was no chill. The temperature was elevated. In this attack there were signs of consolidation in the right back and pleural friction rub. Embolism and infarction were suspected, but careful search at this time failed to show any evidence of venous involvement. Eleven days after the onset of this attack, however, he developed a phlebitis first in one leg and then in the other.

In this case, with repeated emboli from latent thrombophlebitis, the fourth attack occurred between four and five months after the injury. Though immobilization after injury may promote venous thrombosis, it certainly is desirable, once venous thrombosis is established, to diminish the danger of embolism by complete rest. How long an affected part should be kept at rest is difficult to determine. A period of two weeks

to allow the thrombus to become fixed is perhaps customary, and yet in this patient following bed rest for one month still another embolic attack occurred seven to eight months after the injury.

DR. MALLORY: I remember doing an autopsy on one case of fatal pulmonary embolus approximately three months after the onset of phlebitis following trauma, although the patient had had persistent evidence of phlebitis during the whole period.

DR. ARTHUR W. ALLEN: I think there are two or three points of interest in connection with these cases of fatal pulmonary embolism that might be brought out here. Two or three years ago Dr. Lincoln Davis looked up all the cases of fatal pulmonary embolus we had had on the Surgical service in this hospital and found that over a ten year period there were three cases for every thousand major operations. Also from his study he felt very sure that a chart that was not quite flat but was elevated a little towards the ninth or tenth day should be respected very highly as regards getting the patient out of bed, etc.

Another interesting point is that Dr. Miller and Dr. Horatio Rogers studied our cases of postoperative peripheral phlebitis and found that in two hundred and six instances there were only seven fatal pulmonary emboli. I think the general impression is that postoperative peripheral phlebitis is very much more prone to give off emboli than the figures actually show.

At the Mayo Clinic a large series of cases of phlebitis have been studied from the standpoint of predisposing factors. Obesity and low blood pressure seem definitely to predispose to this condition.

Very often we see multiple small emboli in postoperative cases and we have almost come to believe that fatal pulmonary embolus is not likely to follow, as rarely in our experience has a fatal embolus followed small multiple ones.

DR. GEORGE W. HOLMES: Is there any tendency to collapse of the lung immediately following embolism? Does the air pass out of that portion of the lung?

DR. MALLORY: In the last case, Case 19052, there was a very definite collapse. That was a very slow death. Pulmonary embolism was not even suspected as the terminal event, since there was an interval of between one and two hours during which he gradually failed. In the very sudden fatal cases with death within a few minutes I do not remember seeing collapse. I should not expect it, for I do not think there is time for it to occur. And in cases where infarction occurs the alveoli are usually distended with hemorrhagic exudate so that collapse is not obvious. Whether it is preceded by collapse I do not know, though I think it is quite possible.

DR. HOLMES: I have been wondering if there would be any distinguishing features by x-ray examination.

DR. MALLORY: The great frequency with which smaller lesions come to infarction at the periphery of the lung might help. One almost never sees a central infarct, whereas central pneumonic areas are quite common.

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THE PUBLIC HEALTH AND MEDICAL STANDARDS

WHATEVER one's theory of the appropriate field for government in public health, all must admit that the public health benefits with the elevation of the general standard of medical practice and suffers with its degradation. The intelligent use of laboratory aids being made more and more generally available; the appreciation of and discrimination in that most difficult field, the early recognition of disease, which is so important in the program of control of all communicable diseases, particularly tuberculosis, gonorrhea and syphilis, and of all chronic diseases; the application of preventive knowledge through the private office where discrimination is easy rather than through the clinic where discrimination is much more difficult; the individualized emphasis in health education which comes with so much more authority from the physician in whom there is confidence than from any amount of tonnage of printed matter or spoken word to the group; all this requires basically sound training for the medical profession of the State.

It is with astonishment that one learns that the Board of Registration in Medicine, which is primarily responsible for the general level of competence of the physicians who may practice in the State, has no authority to approve or disapprove schools from which candidates will be accepted. Granted that the inherent quality of the protoplasm of physicians is the most important primary factor, there is certainly a minimum of educational standards below which a school should not be allowed to fall if its candidates are to be accepted for examination. To set and apply such standards would seem to be an obligation which the Board could not escape. Therefore, all interested in the public health will welcome legislation which would give such basic authority to the Board. It is not the schools, nor the profession, nor the Board of Registration in Medicine which will profit the most from this, but the general public, which in the long run will be inestimably benefited.

VITAMIN D MILK

EVERY new venture into the realm of applied science must stand the test of time and bear the scrutiny of controlled experimentation before it is finally passed as an acceptable unit in a modern armamentarium. This is especially the case in our present stage of medical development when the vitamins are being exploited on every hand and the exaggerated claims made for a variety of vitaminized or irradiated drugs, foods, face powders, footwear and fancy toilet tissues are being shouted from the housetops.

So prevalent, unfortunately, is the tendency of a desperate American commercial system to capitalize on a puff of air and sell it for a trade wind, that the mere mention now of a vitamin content is almost sufficient to exclude a product from the society of decent foods and drugs. Among the respectable products which are bound by virtue of their own honesty to escape this suspicion, vitamin D milk stands well in the first rank. Not only are its claims as to vitamin content and antirachitic efficiency justified, but it has also a real value to the community. It cannot by any means be classed with other heralded commodities which, though excellent, are useless.

Vitamin D milk is produced in Massachusetts only by certified milk farms, coming from cows which are fed a daily ration of yeast irradiated under the provisions of the Steenbock patent. Vitamin D milk produced on farms

certified by the Boston Medical Milk Commission undergoes regular biologic assays at the Massachusetts Institute of Technology and contains vitamin D never less in amount per quart than that contained in a full daily dosage of potent cod liver oil. In a controlled experiment[1] the milk of nursing mothers who received a daily supply of vitamin D milk contained a quantity of vitamin D in excess of that found in the milk of a similar group not so fed.

Vitamin D milk is on all counts the milk of choice for infant feeding and for young children.

REFERENCE

1 Bunker, John W. M.; Harris, Robert S., and Eustis, Richard S.: The antirachitic potency of the milk of human mothers fed previously on "Vitamin D" milk of the cow. New Eng. J. Med. in press.

AN APPEAL FOR AID

WE commend the letter of Dr. George H. Powers which appears on page 277 of this issue to our readers.

Such instances of heroic struggles against adversity should rouse the medical profession to action. There should be a more general feeling of responsibility concerning worthy and unfortunate doctors and their dependents, for we are a group dedicated to service.

The Massachusetts Medical Benevolent Association has only limited resources which provide small stipends to a comparatively few worthy doctors or their families. This organization could extend the range of its charities, if the resources were larger. It merits material support. Either through the writer of the letter or the treasurer of the Massachusetts Medical Benevolent Society, necessary assistance could be given in this case provided that many contributions are forwarded.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

ALLEN, ARTHUR W. A.B., M.D. Johns Hopkins University Medical Department 1913. F.A.C.S. Instructor in Surgery, Harvard Medical School. Associate Surgeon, Massachusetts General Hospital. Chief of Peripheral Vascular Clinic, Massachusetts General Hospital. His subject is "Bleeding Duodenal Ulcer." Page 237. Address: 264 Beacon Street, Boston.

OVERHOLT, RICHARD H. A.B., M.D. University of Nebraska College of Medicine 1926. Formerly Resident Surgeon, University of Pennsylvania Hospital, Philadelphia, Instructor in Surgery, University of Pennsylvania and Associate Surgeon to the University Hospital, Philadelphia. Surgeon, Lahey Clinic in charge of the Department of Thoracic Surgery. Address: 605 Commonwealth Avenue, Boston. Associated with him is

VEAL, J. ROSS. M.D. University of Pennsylvania 1929. Formerly Interne, Pennsylvania Hospital, Instructor in Physiology, University of Alabama and Fellow in Surgery, Lahey Clinic. Instructor in Surgery, Louisiana State University Medical Centre, New Orleans. Address: New Orleans, Louisiana. Their subject is "The Incidence, Character and Significance of Abnormal Physical Signs in the Chest Occurring After Major Surgical Operations." Page 242.

LORD, FREDERICK T. A.B., M.D. Harvard University Medical School 1900. Clinical Professor of Medicine, Harvard University Medical School. Visiting Physician, Massachusetts General Hospital. President, Massachusetts Tuberculosis League. His subject is "The Prevention and Control of Tuberculosis in the Commonwealth of Massachusetts with Special Reference to Childhood Tuberculosis and the Ten-Year Program." Page 248. Address: 305 Beacon Street, Boston.

BIGELOW, GEORGE H. A.M., M.D. Harvard University Medical School 1916. Doctor of Public Health, Harvard 1921. Prior to appointment in Massachusetts Department of Public Health acted as Medical Director, Antioch College, Yellow Springs, Ohio, and Director of Clinic of the Cornell University Medical College. Appointed Director of Division of Communicable Diseases, Massachusetts Department of Public Health 1924. Appointed to present position as Commissioner of Public Health for Massachusetts, 1925. Address: State House, Boston. Associated with him is

POPE, ALTON S. A.B., Dr.P.H., M.D. Tufts College Medical School 1924. Assistant Professor of Epidemiology, College of Physicians and Surgeons (New York) 1925-1926. Chief, Bureau of Communicable Diseases, Department of Health, Chicago 1926-1929. Director, Division of Tuberculosis, Massachusetts Department of Public Health 1930 to date. Address: Department of Public Health, 519 State House, Boston. Their subject is "A Program for Tuberculosis Control in Massachusetts." Page 251.

MINOT, GEORGE R. A.B., S.D., F.R.C.P. (Hon.) Edinburgh 1931, M.D. Harvard University Medical School 1912. Professor of Medicine, Harvard University Medical School. Director, Thorndike Memorial Laboratory. Visiting Physician, Second and Fourth Medical Services (Harvard) Boston City Hospital. His subject is "James Jackson as a Professor of Medicine." Page 254. Address: Thorndike Laboratory, Boston City Hospital, Boston.

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HERMANN LUDWIG FERDINAND VON HELMHOLTZ
1821-1894

It is a striking fact that many of the world's distinguished scientists have owed their introduction to the field of their renown to the lead they obtained from the study of medicine. On the other hand, some, indeed, who were never permitted to engage in the pursuit of what they felt to be their calling have in some way been providentially diverted from their purpose. Metchnikoff, for example, felt the desire to become a physician but was dissuaded by his mother who realized that he would have been a failure in that profession. Helmholtz completed his medical education, practiced in military service for a time and was rescued from such a fate by von Humboldt who appreciated that his abilities were going to waste in such an environment. Helmholtz, however, always felt that he belonged to the medical profession and on one occasion is quoted as having said, "Medicine was once the intellectual home in which I grew up; and even the emigrant best understands and is best understood by his native land."

An element of interest for Americans attaches to Helmholtz because his mother was the daughter of an officer by the name of Penne, a lineal descendant of William Penn, the founder of Pennsylvania. His father was a teacher of philology and philosophy in the Gymnasium School of Potsdam, near Berlin, where Helmholtz was born, on August 31, 1821. He developed a certain intellectual precociousness, possibly due to the fact that as a small boy he was not rugged and his father read much with him and made him commit to memory a great deal of German poetry. At twelve he was able to read the fables of Lökman in the original Arabic. He acquired at an early age some knowledge of geometry from the wooden blocks which were given him to play with during those frequent periods in his childhood when he was obliged to remain in bed on account of ill health. He early manifested an experimental habit of mind and in the Gymnasium when his schoolmates were construing Latin he was trying to work out problems suggested by the reflection of light and the passage of rays of light through the lenses of a telescope.

In 1838, having completed his course at the Gymnasium, he was entered at the Freidrich-Wilhelm Institute in Berlin, for the study of medicine, preparatory to service in the German Army. Here he had as fellow students, DuBois-Reymond, Virchow, Brücke and others, later to become distinguished in one way or another. The incentive of being in intellectual company may have imparted to them all a mental stimulus. He completed his medical course in 1842, the thesis which he presented as a prerequisite for his degree was a piece of original work which confirmed a suggestion made by Müller, to the effect that there must be some connection between the nerve cells which had been demonstrated to exist in the spinal cord and nerve fibers. A circumstance which made the discovery of this connection possible, at the time, was the fact that during his last year in the medical school he suffered an attack of typhus fever. Because he was a medical student the expense of his hospital care was remitted, thus permitting him to save his regular allowance for board. With this money he was enabled to purchase a microscope with which he established Müller's theory and was able to complete his thesis. His interneship at the Charité having been finished in 1843 he returned to Potsdam where he became an assistant surgeon to the Red Huzzars. While here he came under the notice of von Humboldt, through whose influence he was relieved from military duty and made an assistant at the Anatomical Museum and a lecturer on anatomy before the Academy of Arts. It was while here that he gathered the material for a paper on the "Conservation of Force", which he read before the Physical Society of Berlin in 1847, a paper which could only have been prepared by one with a profound knowledge of mathematics. Indeed the paper failed of publication in the Annalen, the official publication of the Society, on the ground that it was too theoretical. It was privately printed through the efforts of DuBois Reymond who found a publisher who actually paid Helmholtz for the manuscript.

When he was twenty-nine he received an appointment at Königsberg to the Chair of Physiology and General Pathology, where he remained six years before he was called to Bonn, this time to the Chair of Physiology. Both at Königsberg and Bonn he taught anatomy in addition to another subject. It was during his stay at Königsberg that he made the discovery for which he is perhaps best remembered by the medical profession, viz., the instrument used for demonstrating the fundus of the eye. As was the case with most of his experimental work he himself made the apparatus used in the discovery of the ophthalmoscope. In 1859 he left Bonn to take a corresponding chair at Heidelberg. Here, because he was obliged to lecture upon only one subject, physiology, he had more time for his investigations and during the twelve years he spent at Heidelberg he brought out the second and third parts of his work on Physiological Optics in 1860 and 1867, respectively, the first part having been issued in 1856. In 1863 he also published his classic on the "Sensation of Tone as the Physiological Basis of Music." His progression from Potsdam to Berlin was completed when, in 1871, he succeeded Magnus as the Professor of Physics at the University of Berlin. Here he remained

until his death in 1894. In completing this circle from his medical school days and early, though brief, experience in practice at Berlin and Potsdam, back to his starting point in Berlin, he had not merely touched upon, but had made brilliant contributions to, seven sciences, an accomplishment rarely, if ever, equalled. The diversions which he enjoyed and which must have been necessary to so great and so intensive an application of intellectual force, were mountaineering, swimming and music. In this latter field he was an accomplished pianist. He was meticulous about the form of his literary work, often rewriting his papers several times which, in itself, must have exacted a heavy toll in time, for there was never a year, except that of 1849, when he did not publish at least one important paper; usually there were three or more. They came in a steady stream from 1842, when his first paper appeared in print, to the year of his death, which was 1894.

Someone has pointed out that one may not properly evaluate a person of distinction, whether in science or what not, without an understanding of the currents of thought prevailing at the time when the individual could be expected to react to them. The last of the eighteenth and the early nineteenth centuries marked the culmination of metaphysical conceptions as applied to science, reflecting the philosophy of Hegel and Schilling in Germany, where science had not progressed to the extent it had in France, the Revolution having developed general skepticism and where Lavoisier, Laplace and Cuvier exerted dominant influence in the development of a scientific center. Many German youths were being trained in Paris and carried home a leaven that was later to start a ferment in Teutonic science. It was to the group of young men in the Gymnasia and the Universities of Germany, during Helmholtz's time, that these ideas were brought home and the pioneers in the emancipation of German science from its metaphysical taint were Müller, von Humboldt, Liebig, Ohm, Magnus and Weber, to mention only a few of the authorities holding teaching positions in Germany during the first half of the nineteenth century. From these men the torch was passed on to Brücke, DuBois Reymond, Virchow and Helmholtz who, in the view of a contemporary of them all, viz., Wiedemann, was head and shoulders above them all.

Besides the contribution to science, mentioned above as having been his first published article, he contributed, in 1843, a paper on fermentation in which his ingenious experiments proved that organisms in the air and in yeast are responsible for putrefaction. Approaching physiology from the physical side many of the problems he studied were of a physicochemical nature and one of the most important of these was that of the origin of animal heat, which he worked upon from 1844 to 1848. In 1849, the year of his progression from Berlin to Königsberg, the twenty-ninth of his life, he married, and this fact, together with the presumption that a young professor taking up work in a strange place would find it necessary to orient himself, probably accounts for the absence of any scientific contribution from his pen during that year. This was the only year of his long career of which this can be said.

Besides the discovery of the ophthalmoscope during the Königsberg professorship, he wrote papers on the rate of transmission of nerve impulses and began his studies upon color and sound which were to culminate, in respect to sound, in his famous monograph on "The Sensation of Tone as the Physiological Basis of Music." Physiological problems in relation to animal heat, animal electricity, the nature of sensation, etc., were minor paths into which his investigations led him in those years at Königsberg. In 1854 he made the first of several visits to England, attending at this time a meeting of the British Association at Hull. His subsequent visits were more often to foregather with his fellow scientist, Lord Kelvin, between whom and Helmholtz a close friendship existed over many years. By means of the ophthalmometer, which he invented in 1852, he was enabled to arrive at an understanding of the accommodating mechanism of the eye. The closing years of his stay at Königsberg were spent, largely, in a study of the origin of color sensations and the method of production of color combinations.

In his next professional assignments, those at Bonn and Heidelberg, he did for acoustics what he had already done for optics. During these years spent at Heidelberg and Bonn he was teaching anatomy and found time to make interesting anatomical investigations which he reported in papers read before local medical societies. They related chiefly to the structure of the thorax, the movements of the arm at the shoulder and of the forearm, particularly in respect to the muscles of pronation and supination. In 1864 he delivered the Croonian Lecture before the Royal Society on the "Normal Motions of the Human Eye in Relation to Binocular Vision." In 1869 he presented a paper on hay fever to Virchow's Archives for Pathological Anatomy. It reflected his own personal experiences with this disease which caused him much annoyance during his holiday periods, for 21 years. He found microörganisms of a vegetable nature in the nasal secretions and in his own case was successful in aborting the attacks by the application of solutions of quinine to the mucous membrane of the nose.

From 1856 to 1871 he gave a number of popular lectures on scientific subjects which were models of their kind. In 1871, Magnus, the Professor of Physics at the University of Berlin, died, and after some persuasion — for he delighted in the country about Heidelberg —Helmholtz consented to return to Berlin to

fill the vacancy in that chair. For the twenty-three years that remained to him he devoted himself to the problems of Physics and its teaching in the University. Besides this he was Director of a Research Laboratory very similar to our Bureau of Standards, though more limited in scope. His first wife having died a few years after their marriage, he married a second time, in 1861. A son and daughter were born to this union but the son, who seemed destined to follow in his father's footsteps, died in 1889. His death was a blow from which his father never wholly recovered. The daughter married the son of the founder of the Physico-Technical Institute, who was one of Helmholtz's most intimate friends. His home was a center of intellectual and artistic activity, where gathered a large circle of acquaintances and friends of similar tastes and interests. As he grew older he found his thought centering more and more in the higher problems of physics and particularly did he seek aid for the solution of these questions through mathematics. Aside from such matters he was interested in certain philosophical studies that grew out of his earlier investigations of sensation and perception. His labors included studies in the conservation of energy, hydrodynamics, electrodynamics, physics as applied to meteorology, optics, acoustics, and the principles of dynamics. In the course of his physical investigations he invented new instruments or essentially modified old ones to improve their efficiency. In 1881 he delivered a lecture before the Chemical Society of London on the "Modern Development of Farraday's Conception of Electricity."

Honors came to him from all quarters but left him the same modest, unassuming character that he had always been. His relations with his students, though reserved, were always kindly and helpful; his treatment of colleagues always considerate and just. His last long journey, and his only visit to America, where he had a number of brilliant students, notably Henry Rowland the Professor of Physics at Johns Hopkins University, was for the purpose of attending the World's Fair in Chicago, in 1893. On the return voyage he suffered severely as the result of a fall on shipboard. His friends noted from that time on that he lost ground, physically, until in July, 1894, he became the victim of an apoplectic seizure to which he succumbed on September the eighth, 1894, eight days after his seventy-third birthday.

MASSACHUSETTS LEGISLATIVE NOTES

The following bills, of interest to the medical profession, are before the Massachusetts Legislature:

S. 161 to accompany the petition of Charles G. Miles for legislation relative to the composition of local boards of health and to the powers and duties of chairmen and health officers of said boards. Public Health.

H. 437 by Mr. Woekel of Methuen, petition of the Massachusetts State Federation of Labor that a state fund be established for compensating employees injured in industrial accidents and that employers be enabled to insure their own risks. Judiciary (Joint.) Hearing February 9.

H. 476 by Mr. Small of Truro, petition of C. P. Curley and E. Hayes Small that medical examiner districts in the county of Barnstable be rearranged. Public Health.

S. 113 an act penalizing certain experiments and operations on live dogs. Hearing was held January 31.

H. 370 provides for the validation of the registration between March 10, 1917 and January 1, 1933, of certain physicians, graduates of medical schools giving courses of less than thirty-six weeks in each year. The hearing was held January 24.

H. 529 by Mr. Levins of Boston, petition of Marcus J. Levins relative to fixing the time when compensation shall be paid to employees injured in industrial accidents. Labor and Industries. Hearing February 9.

H. 519. An act relative to the liens of physicians, nurses and hospitals for services rendered in the treatment of injuries for which the patient receives compensation. The hearing was held February 1.

S. 124. An act to secure payment of the charges of certain hospitals for services rendered in connection with motor vehicle accidents, out of the proceeds of motor vehicle liability policies and bonds. The hearing was held February 1.

S. 162. An act requiring the vaccination of children in private schools. This is the bill which has been presented by Dr. S. B. Woodward for many consecutive years.

H. 544 by Mr. Herter of Boston, petition of Courtenay Crocker and others that hospital medical officers be authorized to practice outside the institutions designated on their certificates under suitable restrictions and regulations. Public Health.

H. 115 is meant to supply certain deficiencies claimed by the Board of Registration in Optometry relating to the members of the Board and in addition to the power of the Board with reference to the rules and regulations applicable to the Board of Optometry.

H. 298

An Act authorizing the Department of Public Health to establish a Laboratory and Experi-

mental Hospital and Regional Hospitals in the Several Counties.

SECTION 1. The department of public health is authorized herewith to erect one laboratory and experimental hospital and also to erect a regional hospital in each county of the commonwealth.

SECTION 2. The laboratory and experimental hospital shall be for the purpose of study and experimentation. Each of the regional hospitals shall have one hundred beds.

SECTION 3. Bonds of the commonwealth shall be issued to the amount of ten million dollars. These bonds shall run for a period of fifteen years at an interest rate of four and one half per cent per annum.

SECTION 4. Regional and community costs, or private treatment costs, may be arranged under special agreements.

SECTION 5. This act shall take effect upon its passage.

H. 308

An Act regulating Admissions to Certain State Sanatoria.

Section sixty-three of chapter one hundred and eleven of the General Laws, as appearing in the Tercentenary edition thereof, is hereby amended by adding at the end thereof the following:—No person shall be admitted to the sanatoria aforementioned unless the assent in writing of the board of health of the city or town where such person has a probable settlement, has first been obtained,—so as to read as follows: -- *Section 63.* The commissioner shall have general supervision and control of the sanatoria at Rutland, North Reading, Lakeville and Westfield, and shall see that the affairs of such institutions are conducted according to law, and to the by-laws and regulations established by the council in respect thereto. He may also establish out-patient departments, and may disseminate information as to the best methods of combating tuberculosis. No person shall be admitted to the sanatoria aforementioned unless the assent in writing of the board of health of the city or town where such person has a probable settlement, has first been obtained.

H. 311

An Act to create a Division of Therapeutics within the State Department of Public Health.

SECTION 1. The state department of public health is authorized herewith to establish a division of therapeutics after the plan of the federal government. Expense of maintenance shall be included in the annual budget. Periodical examinations shall be held for applicants who desire to become practitioners in public or private service. Certificates shall be issued to those who qualify. No one except those who shall qualify shall practice therapeutics as specified under this act. Punishment for violations shall be in accordance with the General Laws covering malpractice and misdemeanor.

SECTION 2. Any item in the federal law not applicable or not conforming to Massachusetts law and custom may be changed or amended by the state board of health.

SECTION 3. This act shall take effect upon its passage.

The hearing was held January 30.

H. 365

An Act providing a Right Of Appeal from Decisions of the Board of Registration in Medicine and Other Boards.

SECTION 1. Section sixty-four of chapter one hundred and twelve of the General Laws is hereby repealed.

SECTION 2. Any person aggrieved by any ruling, decision, or action of the boards of registration in medicine, pharmacy, or veterinary medicine, or of the board of dental examiners, may appeal from such ruling, decision, or action by filing a complaint against such board in the superior court for the county where such person resides or has his principal place of business, within thirty days after receiving notice from the board of such ruling, decision, or action. An order of notice shall be issued by said court and served on the secretary of the board within such time as the court directs. The case shall be fully heard and determined upon its merits by the court sitting without a jury. There shall be no presumption in favor of the ruling, decision, or action appealed from. The decision of the court shall be based solely upon evidence presented at the hearings before it. The court shall have power to stay or suspend the action appealed from pending a final determination of the appeal.

SECTION 3. This act shall take effect upon its passage.

The hearing was held January 23.

H. 446

An Act regulating the Conduct of Physicians.

SECTION 1. A physician shall not remove any limb or organ of the body from a patient, without first obtaining consent of such patient, if the patient is mentally and physically capable of giving such consent; otherwise he shall obtain the consent of the patient's husband or wife or nearest available relative or of the patient's parents or guardian. If the patient is unconscious, whereby he could not or cannot know of any necessary operation, and no relative, husband or wife or guardian is within call, the physician may proceed upon his own judgment, if it is necessary to so do for the patient's safety.

SECTION 2. After the removal of such organ or limb the physician shall explain to the patient and husband or wife and relatives or guardian that it is their right to view the part removed from the body, alone, or in the presence of any physicians they may choose, and may have a full explanation alone or in the presence of any physicians they may choose, as to the necessity of such removal. The physician shall also deliver a written state-

ment of explanation to the patient or patient's husband or wife, or relatives or guardian telling the nature of the operation which he has performed upon the patient and giving his reasons for considering such an operation necessary.

SECTION 3. Upon the completion of an operation by a physician involving the removal of a limb or organ, a physician, other than the operating physician, to be designated by the superintendent or other person in charge of the hospital where the operation was performed, shall take immediate charge of the limb or organ removed and seal said limb or organ in a preservative and lock it away. Said limb or organ so preserved shall not be tampered with, until it is known whether or not the patient or the patient and his relatives wish to take advantage of the right to view said limb or organ.

SECTION 4. A physician shall not, without first obtaining permission from the patient if an adult, or from the patient's parents or guardian if a child, tear or cut by hand or instrument any part of the body, or insert instruments in any part of the body, whereby the patient's rights as a free and sane individual are violated.

SECTION 5. A physician violating any provision of this act shall be punished by a fine of not less than fifty or more than five hundred dollars, or by imprisonment for not more than one year, or by both such fine and such imprisonment.

The hearing was held January 24.

H. 270

An Act providing for Payment of Compensation to Employees Injured in Industrial Accidents during the Entire Period of Total Incapacity.

Section thirty-four of chapter one hundred and fifty-two of the General Laws, as amended by section seven of chapter three hundred and nine of the acts of nineteen hundred and twenty-seven, is hereby further amended by striking out all after the word "dollars" in the eighth line,—so as to read as follows:—*Section 34.* While the incapacity for work resulting from the injury is total, the insurer shall pay the injured employee a weekly compensation equal to two thirds of his average weekly wages, but not more than eighteen dollars nor less than nine dollars a week, except that the weekly compensation of the injured employee shall be equal to his average weekly wages in case such wages are less than nine dollars.

The hearing was held January 26 and the petition was given leave to withdraw.

H. 231 an act prohibiting the sale as pure milk of the combination of milk fat with milk, cream or skimmed milk, whether or not condensed, evaporated, concentrated, powdered, dried or desiccated.

H. 271 an act to define further "Average Weekly Wages" under the Workmen's Compensation Act. The hearing was held January 26.

H. 313 an act to create a department of public medicine and health to take over the activities of the Department of Public Health and the Department of Mental Diseases and certain activities of the Department of Public Welfare and the Department of Industrial Accidents.

The hearing was held January 18, and the petition given leave to withdraw.

Section one simply provides for the creation of the department. This section is further amplified in sections two, three, four, five, six and seven.

Section eight provides for the medical administrator and five assistant medical administrators.

Section nine provides for the appointment of the administrators of the department of the division of physicians and surgeons.

Section ten gives details respecting the division of dentists.

Section eleven relates to the division of nurses.

Section twelve refers to the division of pharmacists and chemists.

Section thirteen defines the division of technicians.

Section fourteen refers to the establishment or abolition of divisions and subdivisions by the department as may be necessary.

Section fifteen refers to the upkeep and operation of public hospitals and the force employed there.

Section sixteen defines the duties and purposes of the department. These are amplified in sections seventeen, eighteen, nineteen, and twenty.

Section twenty-one refers to the appropriations and expenditures. This section is further amplified in sections twenty-two, twenty-three, twenty-four and twenty-five.

H. 314 an act relative to the approval and payment of accounts by cities and towns against the Commonwealth on account of certain poor, sick and dependent persons. The hearing was held January 23.

H. 9 an act establishing the Public Welfare Department in the City of Boston.

S. 25 an act providing for monthly reimbursements by the Commonwealth to cities and towns on account of expenses for certain poor, sick and dependent persons.

H. 23 is an act relative to the choice or option of procedure by the employee under the Workmen's Compensation Law.

The hearing was held January 24.

The bill reads as follows:

Chapter one hundred and fifty-two of the General Laws, as most recently amended in section twenty-four by section two of chapter three hundred and nine of the acts of nineteen hundred twenty-seven, is hereby further amended by striking out said section twenty-four and inserting in place thereof the following:—Section 24. The employee of an insured person may at his option proceed either at common law against the insurer to recover damages or the employee may proceed against the insurer for compensation under the provisions of the general laws chapter one hundred and fifty-two, but he shall not be called upon to exercise this option unless he is injured

during the course of his employment. This option must be exercised within thirty days after the right of action accrues; said option may be exercised by the party himself or by anyone acting for him or in his behalf.

MISCELLANY

A RADIO MESSAGE PREPARED AND SPONSORED BY THE COMMITTEE ON PUBLIC EDUCATION OF THE MASSACHUSETTS MEDICAL SOCIETY FOR THE DEPARTMENT OF PUBLIC HEALTH

What Is New in Infant Feeding*

BY DAVID W. SHERWOOD, M.D.

New ideas in infant feeding come and go. I think it is safe to say that the majority of them go. In many years of experimentation there has been no substitute produced for breast milk which is as good as breast milk itself.

The choice of infant foods today approaches infinity as a limit and we are near the limit. From Germany we hear of almond seek milk, poppy seed milk, and sunflower seed milk. Others feed lactic acid milk, orange juice milk, and lemon juice milk. Some use dried or canned milk with the fat, carbohydrate or protein contents altered to compare either favorably or unfavorably with breast milk. There is milk in which the vitamins are present in added strength. There is milk which is changed by the action of certain bacteria. There is milk made from vegetables and there is frozen breast milk. There are probably many others which could be added to this list. Some of these products have specific uses.

Dried or canned milk is useful when traveling. Milk containing added vitamins relieves us of the task of giving vitamins in other forms some of which are said to be distasteful. Certain kinds of milk appear to be better tolerated by some babies than certain other kinds. We cannot be sure, however. Frozen breast milk makes it possible to preserve breast milk, which is a perishable food and might otherwise be wasted. Vegetable milks are needed for the rare baby who cannot take cow's milk.

It may be safely said, however, that the average baby is not concerned with this panorama-like assortment of infant foods. If he cannot have breast milk, he will probably do very well on a formula consisting of pasteurized milk of good quality with sugar and water added in the proper proportions. A baby who does not do well on such a formula — one who does not gain and attain a normal growth—will often be found to be suffering from an unsuspected infection or some congenital defect. Perhaps an injury at birth or faulty environment in the home will be the root of the trouble. It is this idea which I wish to call to your attention as a new idea in infant feeding.

The old theory taught us that there were many ways to feed a baby. If one formula did not work, another might. The modern point of view teaches that there is one good way to feed a baby. He should have a well-balanced formula. If he fails to do well after a fair trial, we should study his case carefully to eliminate the possibility of his having any serious disease which might be a cause for his failure to gain weight and progress normally. Every babies' hospital admits, almost daily, small pitiful, poorly nourished patients to the outpatient department or to the wards, whose mothers say, "My baby never had a formula that suited him", or, "He has never regained his birth weight because he did not take his milk well." When these small patients are fed correctly and fail to gain, further investigation very frequently shows a cause which is in no way related to their feedings. Therefore, I wish to emphasize the modern point of view which is this: If your baby fails to gain weight on a well-balanced formula, ask yourself the question — not what is wrong with the formula but — what is wrong with the baby?

There have been other interesting and important ideas in infant feeding in recent years. One of these concerns the baby before birth.

The baby has to be nourished before he is born. It is his only business for nine long months to attain a growth and strength which will enable him to withstand the hardships of this life. He should be nourished carefully and well. In order to do this we must feed his mother carefully and well. Let us discuss this point further.

Some babies in China are born with defective bones which resemble the bones of babies with rickets. They probably have rickets. Their mothers have had deficient diets which are very likely the cause of this condition in the babies. We do not see this extreme condition in this country, but we do see other conditions which may be the early stages of such a state. For instance, certain babies develop rickets much more readily than others. Is this condition due to an unsuspected deficiency in the diets of their mothers? In experiments with animals it has been proved that animals on a deficient diet give birth to young that develop rickets more readily than the young of well-fed animals. The deficiency in the diet which causes rickets is an absence of vitamin D. Therefore, you can see that it would be both safe and wise to include adequate amounts of vitamin D in the diets of expectant mothers.

If this is true of vitamin D, it applies with equal force to vitamins A, B, and C as the absence of any one of these vitamins from the diet causes diseases which are well known to the medical profession. The diseases due to a deficiency of a vitamin are unfortunately recognized

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only in their late stages. This means that the trouble has been present for some time before we are aware of its existence. If preventive medicine is to be effective, it must be begun early, and so it seems reasonable to give vitamins to expectant mothers as a preventive measure. This is for the sake of the mother as well as the baby. So it is also reasonable to offer the mother, during pregnancy, calcium and phosphorus. In this way the demands of the baby for these growing materials can be met without overtaxing the mother's supply.

If it is thought to be overcautious to anticipate the baby's needs before he is born, certainly no one will deny the importance of supplying him with an adequate diet after he comes into the world.

Vitamins A and D should be given in the form of cod liver oil, which is their most reliable source. Recently the oil of the halibut has been found to be many times richer in vitamin D than cod liver oil. It also contains an adequate amount of vitamin A. Halibut oil, however, is very expensive. Recently, too, it has been discovered that the percentage of vitamin D in cow's milk can be increased by feeding the cows substances which contain large amounts of vitamin D. Such milk will prevent rickets in the average baby, and eliminate the need of giving cod liver oil. The vitamin A content of this milk is not increased, but this highly vitaminized D milk is also expensive.

Vitamin C should be given to the baby in the form of orange juice or tomato juice. Recent experiments with vitamin B prove that it is essential to the diets of animals. It is probably a good thing to add an adequate amount of vitamin B to the baby's diet also. Cow's milk was formerly thought to carry an amount of vitamin B sufficient for the baby's needs, but some recent experiments have shown milk to be a poor source of vitamin B.

A word should be said here about overdosage of vitamins. In animal experiments injury to the blood vessels has been caused by overdosage with vitamin D. Supervitamin preparations should only be used with the advice of a physician. It is well to remember that a little may be good but too much is not necessarily better.

Finally a word about iron. Iron has always been an essential ingredient of a baby's diet. It is now known that premature babies and babies who have been on the breast or bottle too long are liable to become anemic. This anemia can be cured by iron. The iron, however, must be given in much larger doses than has been customary in the past if the desired effect is to be achieved. As a preventive measure it would probably be wise to add some iron to the diets of all premature babies.

To sum up, we find no startling advance in infant feeding. After all there is no one food which is superior to or as good as breast milk. If breast milk cannot be obtained, the average baby is best fed on cow's milk modified under medical supervision. As I have indicated, the vitamins are important. We are going to supply them to the mother and the baby and be on the safe side. We want to give iron before the babies develop anemia for the want of it. We are no longer going to blame feeding for all the ills of infancy. We are going to assure ourselves that the formula is correct and then, if the baby does not gain, look for other causes for his failure to gain. Without the cause there can be no cure!

TUBERCULOSIS ABSTRACTS

ISSUED MONTHLY BY THE NATIONAL TUBERCULOSIS ASSOCIATION

Poverty and tuberculosis go hand in hand; so runs the doctrine preached for a score of years. Some even regard the tuberculosis death rate as a rough barometer reflecting the fluctuations in the economic state of the people. For more than three years hard times have blighted the country; few have escaped its evil effects. Yet the tuberculosis mortality rate continues to decline. How can this paradox be explained? No authoritative answer is available and none would be so rash as to predict a continuation of the downward trend. But a consideration of some of the influences that undoubtedly play a part in this phenomenon may suggest what steps in the future must be taken to sustain the present favorable trend.

EFFECT OF DEPRESSION ON TUBERCULOSIS

The tuberculosis death rate for 1930 in the United States reached the low point of 71.5 per hundred thousand population. Unofficial but reliable estimates for 1931 show a rate of approximately 67 per hundred thousand. The Metropolitan Life Insurance Company calculated that at the end of the third quarter of 1932, the tuberculosis death rate had declined 6.9 per cent as compared with the like period of 1931.

Deaths from tuberculosis come mostly from that group who have had the disease for some time. Among the tuberculous population at any given time there are always some whose fate hangs precariously in the balance. A slight downward push on the scale such as hunger or worry is likely to bring the struggle to a premature end. Apparently there are not enough such "critical" cases of tuberculosis among the "new-poor" to affect appreciably the mortality rate.

We are not certain, however, that hard times are not increasing the morbidity of the disease. Assuming the average expectancy of the consumptive to be five years, the present effects of deprivation, even though temporary, may shorten that expectancy. Furthermore, our present understanding of the manner in which tuberculosis begins and develops justifies us in assuming that environmental influences often determine whether or not a child with early lesions will later develop

the destructive adult type. And many children now heavily infected but not yet labelled "tuberculous" are suffering deprivation. Thus the toll of the enemy may be so "absorbed" in the years to come as to show no definite "hump" in the mortality curve.

Aside from these probabilities why has the mortality rate not yet reflected the effect of poverty? While poverty and tuberculosis are closely related, there is nothing about poverty *of itself* that favors the disease. The sole, direct cause of tuberculosis is the tubercle bacillus. Without infection by that specific germ, even an emaciated person could not possibly develop phthisis. But the *by-products* of poverty are the active allies of the enemy.

One such by-product is faulty nutrition. We have not thus far permitted this by-product to overwhelm us. Luxuries, comforts, and even self-respect may have to be sacrificed by many people, but old-fashioned starvation for the sheer want of bread is a disgrace we are determined not to suffer. Nor is the nutritional quality of food being sacrificed to any great extent. During the war, the hunger of European peoples was appeased by filling their stomachs with food substitutes of poor nutritional value. Not so in the present crisis. True, the consumption of milk has decreased somewhat, but on the other hand, the cheap price of butter has enlarged sales of that article at the expense of butter substitutes. Meats, vegetables, and fruits have dropped to a price level that discourages the competition of foods of lesser nutritional value. Allowing for the concessions many families are making, we still may safely assume that no widespread harm has as yet been wrought because of poor nutrition.

Another by-product of poverty is the crowding together of families, which in turn favors the ready transfer of the tubercle bacillus from the sick to the well. Domiciliary crowding has not yet been severe. The inhuman huddling of several families in quarters designed for one, as was so common during the war, has been mitigated by lowered rentals. Incidentally, the experience in German cities in the post-war period indicates that food shortage rather than crowding is the significant factor in causing an increase of the rate. During the blockade when food supplies were cut off, the tuberculosis death rate rose to unprecedented heights. When the blockade was lifted this rate declined precipitately to its former level, though the housing shortage continued as before.

A third by-product of poverty is shattered family morale. "What's the use?" is the attitude of the discouraged family. Slovenly habits creep in. Why wash the dishes carefully? Why not spit on the floor? Why keep the appointment with the doctor? Cheerlessness and numbness subtract their toll from one's capital of resistance. Deplorable situations are evident, but in the aggregate we have kept our courage to the sticking point, and the pessimism that now presides in many households has not yet become chronic.

MOMENTUM OF THE MOVEMENT

An important factor responsible for the continued decline of tuberculosis deaths is the cumulative effect of the tuberculosis movement. For a score of years, educational propaganda has been rolling up its force; its momentum has been slackened only slightly by the present pot holes in the highway of progress. Knowledge acquired in the past has not lost its power; our respect for tuberculosis has not lessened; habits and practices acquired in the good days continue to function in the bad.

But perhaps the most pertinent answer to the question as to why the death rate has not taken an upward turn is to be found in the tuberculosis fighting machinery that is now functioning. It is, of course, inadequate, but in no previous depression have we been so well equipped. Some eighty thousand patients are at the moment occupying sanatorium beds, which means not only that eighty thousand persons are being given their chance, but also that as many potential foci of infection are removed from the susceptible community. More thousands, graduates from tuberculosis institutions, are exerting their wholesome influence wherever they may be. The sanatorium is doing "business as usual," in fact, almost 1,000 new beds have been added (in the U. S. A.) during the past year. Nor has there been an appreciable lessening of clinic and medical activities. Greater skill and precision in diagnosis and treatment are practiced by the doctor than ever before. Health department budgets in several places have been curtailed, but without seriously lessening the efficiency of the service rendered. Public health nurses' salaries have suffered reduction but not the quality of their work. Tuberculosis associations have trimmed their sails, but the educational and publicity work goes on unabated. Research has not stopped, and demonstrations gaily carry on.

CONTROL MACHINERY WORKS

The machinery has clicked on despite the depression. The fact that this "variable" has *not* changed (except for the better) whereas the other traditional variable, namely, the economic factor, has changed, and that, in the face of this, the tuberculosis rate has not increased, is indirect but persuasive proof of the efficacy of our present method of attacking tuberculosis.

Epidemiology teaches that human skill apparently avails little during the heights of an epidemic. But when the foci of infection begin to decrease in number, organized effort bears fruit and accelerates the decline. When the disease foci are finally reduced to a minimum, the epidemic is "under control". Has the age-old epidemic of tuberculosis reached the point where the active cases are so few that the disease may be "controlled" regardless of unfavorable circumstances?

Whatever the answer, — the danger of overconfidence must be avoided. Human nature,

notoriously fitful and fickle, must be reckoned with. Experience shows that a populace plagued by a disease enemy may be roused to such a pitch as to depress the danger to a vanishing point. When the threat lessens, interest lags, vigilance relaxes, and then the enemy sweeps once more into the unprotected ranks. For this reason the history of smallpox since Jenner's time is one of sporadic recurrences alternating with periods of quiescence, but never of complete conquest.

The anti-tuberculosis crusading spirit of bygone days drew its power chiefly from deep emotion. As the stimulating reminders of the disease have grown fewer, interest has lessened. It is necessary in these days to replace the old fire with a persistence born of intellectual understanding. For this, leadership of the medical profession is essential. The fact that the traditional and powerful contributing causes of tuberculosis may now be, and are presumably being, "neutralized" by medical skill in diagnosis and treatment, is a tribute to scientific medicine and its practitioners.

MORTALITY RATES

Telegraphic returns from 85 cities with a total population of thirty-seven million for the week ending January 7, indicate a mortality rate of 13.6 as against a rate of 13.0 for the corresponding week of last year. The highest rate (23.1) appears for Nashville, Tenn., and the lowest (6.7) for Salt Lake City, Utah. The highest infant mortality rate (22.2) appears for Louisville, Ky., and the lowest for Duluth, Minn., Fall River, Mass., Long Beach, Calif., Lowell, Mass., Spokane, Wash., Tampa, Fla., and Youngstown, Ohio, which reported no infant mortality. January 1933 starts with a higher rate than January 1932.

CORRESPONDENCE

A TRIBUTE TO DR. LAWRIE BYRON MORRISON

Mr. Editor:

There are hundreds of people who will miss Dr. Morrison personally, and there are thousands of others who will have grateful memories of him. May I take advantage of your columns to express, as well as I can, my own feeling of regret that he is gone, and my appreciation of his professional attainments.

It is said that a man is never truly great unless he leaves a great pupil. Lawrie Morrison's career has given this final proof of Walter Dodd's greatness. I had the privilege of knowing both men from the time they began their work in Roentgenology until their deaths. Morrison was Dodd's pupil, assistant or associate, from 1914 to 1916, when death ended their partnership. In these years of intimate association, the fine traits of the master's character imperceptibly strengthened those of the pupil during the daily transmission of knowledge and experience in the practical application of Roentgen's discovery. That the pupil had the character to accept the example shows his own greatness, for he, unlike the master, was forewarned of the future. The example of self-sacrifice and of incessant work for the benefit of his patients was fully sustained by Morrison. As a foundation for this training Morrison had a good education and actual experience in the practice of medicine and in administrative work. He also had remarkable mental and physical qualities, an unusual memory, rare executive ability and an exacting sense of accuracy. His slight, wiry frame was apparently tireless, and no one who came in contact with him could fail to wonder at the enormous quantity of work which he was able to do thoroughly, in a single day.

He had a good business sense, but the way in which he planned his work demanded a great deal from him personally. He kept his charges down by elimination of waste in his own time, and therefore maintained as rapid a "turnover" as could be consistent with thoroughness, but, until he had satisfied himself that each case had received his best opinion, time and material did not count. Often patients for whom he worked hardest became expensive ones for him. I have known him to do so much work of this kind without charge, that I have marveled at his ability to be constantly equipped with all that was essential in up-to-date x-ray appliances, which are very expensive; yet among the patients whom I have referred to him many spoke of his moderate charges and I recall only one who complained! He not only gave in time and money, but he exercised the virtue of charity in his point of view toward all. In his work he necessarily displayed to us proofs of our surgical and medical inefficiencies and even errors, without undue criticism.

We hear much about the skill and deftness of surgeons and of their ability to manage the characters of patients as well as to repair their anatomic defects. Morrison was as alert, skillful, kind and forceful as an ideal surgeon. I have sometimes been spellbound while watching him make examinations of my patients. The deftness and speed with which they were placed on the table and induced to swallow barium was a constant source of admiration. Enemas were given and withdrawn as miraculously as if by the sleight of hand of a magician. In the meantime the patient was coaxed or gently mobilized into an appropriate position for the picture, perhaps even while conversing with the doctor on some interesting subject. All this time the latter's busy brain would be planning the technique to investigate the next case, so that no moment would be wasted between the two examinations. I remember on one occasion an old crochety multimillionaire, a typical dictator, who always wanted to have everything his own way. I had some doubt as to whether he would take a barium meal, but in Dr. Morrison's hands he was as docile as a

child, even though he was encouraged by being told that he was "a good boy". Old people, no matter how dignified or socially prominent, were always "good boys" or "good girls" on his magic table, for the tone in which he expressed this familiarity made them feel that they had earned a compliment. Under his spell they went back to their childhood. Everyone, whether a typical roughneck, a fussy old dowager or a fretful infant, was treated with similarly rapid but gentle firmness, and all seemed to enjoy yielding to his will.

There are few specialists in Boston who will not admit that even in their own fields he taught them much. Every department of medicine is today more or less dependent not only upon x-ray technique, but on the interpretation of the films by one who is experienced in the study of the roentgen pictures, and has a wide general knowledge of all the specialties. In this respect Morrison was a master. He did not confine his reading and study to his specialty. I think it is true that a patient with any kind of obscure medical or surgical difficulty could get a more accurate diagnosis from him than from many of the well-known internists. In many instances his opinion was the deciding factor in clinching the diagnosis on which treatment was based. To such men, we owe the fact that the roentgenologist is no longer a technician; he is, par excellence, a general diagnostician. The battle between the internists and the roentgenologists is being fought and Morrison was a master in the ranks of the latter.

In the newspapers his career has been truly spoken of as that of a martyr. With Walter Dodd's example before him, he knew the risk he was taking in continuing his profession. Many roentgenologists gave up or avoided, so far as possible, direct fluoroscopic examinations, the most dangerous part of their work. Not so Morrison. He believed that in gastrointestinal conditions fluoroscopic work was indispensable, even if it was dangerous. He knew positively that in some conditions, even a series of plates could not make up in diagnostic value for the view of the mobile organs obtained through the fluoroscope. Knowing the danger, and taking all practical precautions, he proceeded.

Another side of his character was a great interest in the progress of scientific medical advance. Like Dodd before him, he contributed to this, not so much by personal articles which would redound to his own credit, but in the way of constant willingness to assist others who were attempting such work. He literally had no time for continuous research because his unusual ability in practical work was so constantly sought. Many and many a time I have brought to him interesting cases, specimens removed from patients or anatomic studies in association with my shoulder work, always sure that he would give me what help he could. I was one of many. He would never charge for cases with bone tumors, saying that he wished to contribute his bit to the Registry of Bone Sarcoma; he would not be outdone in this respect by me. While he wrote little, his communications were always sound and to the point. He was greatly interested in the behavior of the esophageal hiatus in the diaphragm, and his observations on hernia in this region have been unequaled. I recall, several times, his telling me that he longed to have time to study the films he had taken and to use them to publish some of his observations. Rather than destroy his plates, as many roentgenologists did after the great fire at the Cleveland Clinic which pointed out the danger of keeping masses of inflammable material near the x-ray apparatus, Morrison built a storehouse in the country for his films, feeling that some day he would get time to use them for scientific purposes. I am sure that there are many in our profession who, like myself, are indebted to him for advice about their own persons. His museum of films must contain a perfect rogues' gallery of the stomachs and intestines of the doctors of New England.

Let us try to realize that although his life was cut short, he had made so much of it that the work he accomplished was greater than that ordinarily compressed in a long lifetime. Fortunately his example continues through the doctors and assistants who helped him, as he had helped Walter Dodd. His executive ability is shown by the fact that his three colleagues, Dr. Sydney L. Morrison, Dr. T. R. Healy, and Dr. E. N. Cleaves, and most of the technicians in his smoothly running organization, had been with him for years. They are accustomed to his pace-making and we may rely on them to carry on his work with his enthusiasm but we hope with even greater caution.

E. A. CODMAN, M.D.

AN APPEAL FOR AID

January 20, 1933.

Editor of the *New England Journal of Medicine*,

I am writing to ask if you know of any possible help through the Massachusetts Medical Society for the widow and son of a former member of our Society who died some twenty years ago in middle age. The widow was able to carry on by means of a small estate from the doctor's life insurance and a small inheritance from her father, and has been able to give the boy a splendid education with some help from an uncle who promised to see him through the Harvard Medical School. The lad is a very bright boy and a very hard worker, deserving in every way of a chance to finish his medical course. The school has awarded him one of the highest scholarships.

The situation at present is as follows: the said uncle is unable to give any help. The student's mother has lost her entire estate, and a considerable start made in a business also has fallen flat—these being all due to the country's lamentable financial tangles. The above-mentioned scholarship

will probably suffice for charges in the Medical School, but of course will not provide a home for him and his mother.

There are but a very few old friends of the father left in the profession, and there will be some help forthcoming from them. Needless to say the average doctor can at present extend but feeble aid, which accounts for this appeal to the Society. Any possible addition to our efforts in behalf of this unfortunate little family will be most heartily appreciated. A helping hand to assist a very earnest young man's education to follow his father's profession, not to speak of the struggling mother, should be a pleasure and a privilege.

Very truly yours,

GEO. H. POWERS, M.D.

316 Beacon Street, Boston.

A PLEA FOR SUPPORT OF A BILL BEFORE THE LEGISLATURE

Editor of the *New England Journal of Medicine*,

It may be of interest to the readers of this medical journal that a bill requiring a physical and a mental examination of every applicant for a marriage license has been filed with the legislature. It is of little interest to know who proposed this bill or who is the legislator who filed it. However, there is no question of the inherent prophylactic value connected with such a measure. No honest or sane person would allow his domestic animals suffering with diseases to breed if afflicted with gonorrhea, syphilis, pulmonary tuberculosis or epilepsy. However, the intelligent human beings in 1933 are allowing marriages of individuals stamped with diseases that are infectious. Some enlightened states in the Union have certain laws on their statute books to safeguard and protect the healthy and the innocent. It is high time for this Commonwealth to follow the footsteps of *Delaware, Indiana, Maine, Michigan, Nebraska, New Jersey, Oklahoma, Pennsylvania, Utah, Vermont* and *Virginia* where the marriage of a person who has a contagious venereal disease is forbidden. It is up to this Commonwealth to prove to the rest of the States that it has always been on the watch to protect the health and life of its citizens.

It remains to be seen what arguments may be advanced against this bill when it comes for a hearing before the Committee. Many prophylactic bills have been proposed before the legislators during the last few years. Will this bill die twenty times before it is passed or rejected or will it have better luck than the prophylactic bill requiring vaccination of students in all private schools.

Let us hope that the Committee of 1933 will realize the importance of such a bill. Only a few minutes ago I was criticized by a fellow practitioner for sponsoring such a bill. "Why," said this gentleman, "such an examination will interfere with prospective business!"

We are living in an age of preventive medicine. Every physician who is honest should always strive for the adoption of such measures.

WM. FRANKMAN, M.D.

1325 Commonwealth Avenue, Boston.

AN OBJECTION TO INSURANCE SCHEMES

January 21, 1933.

Editor, *New England Journal of Medicine*,

Dear Sir:

The Attleboro Doctors' Club takes exception to the general tone of editorials recently printed in the *New England Journal of Medicine* favoring the so-called Sickness Insurance System. We do not believe that the Majority Report of the Committee on the Costs of Medical Care is in agreement with the opinions of most practitioners of medicine. There is no reason to believe that the plan offers any material advantages which would offset the inevitable abuses of such a scheme. We regard the proposals as impracticable and not calculated to improve relations between the public and the profession.

In the light of European experience with similar schemes, we feel that the proposed arrangement would be a distinct step backward.

Yours truly,

The Attleboro Doctors' Club,
ROLAND SMITH, M.D., *Pres.*,
CARL J. DEPRIZIO, M.D., *Sec.-Treas.*

A QUESTION REGARDING HYPERSENSITIVENESS AND HORSE SERUM

Editor, *New England Journal of Medicine*,

After having had the experience of using scarlet fever antitoxin in sixteen cases for temporary immunity, and getting vicious reactions in only those three that had been sensitized by toxin-antitoxin (horse-serum base), I feel bound to question your remark that "it is doubtful if the hypersensitiveness is of such a degree as to result in a harmful reaction to a later injection of horse serum".

Further, having been similarly sensitized myself several years ago by horse-serum toxin-antitoxin to the extent that a later dose of equine-bovine serum gave me a very uncomfortable reaction, I want to cast my vote definitely against horse-serum, and until such time as toxoid can be proved free from reaction I shall use goat serum as a base in preference.

Three children with arthralgia, urticaria, violent headaches, vomiting, irrational, and temperatures 104-105.5°F., reacting a week after the use of a serum recommended to prevent them from being ill do not present a happy picture for the family or for the luckless practitioner who gave it. Three or four days of this situation should be enough to cause any man to wish to dodge the possibility of sensitizing any individual to future doses of horse-serum.

In spite of the advice concerning the use of fractional doses or the coincidental use of adrenalin, I want to defy these advisers to convince the child or the parent that one more needle-prick won't do any harm.

Respectfully yours,
EDWARD L. PERRY, M.D.

Middleboro, Mass.
January 24, 1933.

RECENT DEATHS

MONKS—GEORGE HOWARD MONKS, M.D., died at his home in Boston, January 26, 1933.

Dr. Monks was born in Boston, March 28, 1853, the son of John P. and Delia S. (Hatton) Monks. His premedical education was acquired at the Boston Latin School and Harvard College and he graduated from the latter institution in 1875. After a short course at the Massachusetts Institute of Technology he turned his attention to medicine and graduated from the Medical School at Harvard University in 1880. He served an interneship at the Massachusetts General Hospital and later studied at Vienna, Leipzig, Heidelberg, Dresden and Paris. He secured membership in the Royal College of Surgeons of England. Returning to Boston in 1884 he was appointed to the Visiting Staff of the Boston Dispensary and a little later Visiting Surgeon to Carney Hospital. In 1880 he was appointed to the Surgical Staff of the Boston City Hospital being advanced in 1910 to the position of Surgeon-in-Chief and before his resignation in 1914 was given the distinction of Consulting Surgeon.

He taught surgery in the Harvard Medical School for eleven years and held the position of Professor of Oral Surgery in the Harvard Dental School for several years. At various times Dr. Monks devised surgical instruments and made valuable contributions to medical literature. Among the later of his fifty-six papers are the "Selections from the Medical Writings and Sayings of Dr. Oliver Wendell Holmes" and the "Obituary of Dr. Vincent Yardley Bowditch" both published in the *New England Journal of Medicine*. The offices held by Dr. Monks include President of the Suffolk District Medical Society, President of the Boylston Medical Society, Vice-President of the American Surgical Association, President of the Boston Surgical Society, and President of the Boston Medical Library. He held membership in the American Medical Association, the Massachusetts Medical Society, the Boston Society of Medical Sciences and the Boston Society for Medical Improvement, the Tavern, the Somerset, the Harvard, the Country and the Thursday Evening Clubs.

In 1897 Dr. Monks married Miss Olga Eliza Gardner who survives him as do three children, the Rev. George G. Monks, Dr. John P. Monks and Miss Olga Monks. A sister, Mrs. Walther Hempel, is living in Dresden, Germany.

GRAVES—WILLIAM PHILLIPS GRAVES, M.D., died at his home in Boston, January 25, 1933. He was born January 29, 1870, a son of Professor William Blair Graves and Luranah Copeland Graves.

Dr. Graves' early education was acquired at Amherst. He graduated, subsequently, from Yale in 1891 and from the Medical School of Harvard University, summa cum laude, in 1889, served as interne at the Massachusetts General Hospital and in 1901 was appointed an associate of Dr. W. H. Baker at the Free Hospital for Women, Brookline, Mass., advancing to the position of chief surgeon in 1907. He retired from this position January 1, 1933. He was appointed professor of gynecology at the Harvard Medical School in 1911 and in 1927 William H. Baker Professor and at his retirement Professor Emeritus.

Dr. Graves was the author of a textbook on gynecology and by this and many scientific contributions acquired enduring fame as a leader in his field.

He was a Fellow of the American College of Surgeons, a former president of the American Gynecological Society, a Fellow of the American Medical Association and the Massachusetts Medical Society and the recipient of several honorary degrees. He was also prominent in several Boston clubs.

Dr. Graves is survived by his widow, his mother living in Mansfield, and three children, Dr. Sidney C. Graves, William Phillips Graves and Alice Graves. A brother Henry S. Graves is a professor at the Yale Forestry School.

NOTICES

CLINICS IN MEDICINE AT PETER BENT BRIGHAM HOSPITAL

On Thursdays at 3:30 P.M. in the Amphitheatre of the Peter Bent Brigham Hospital Dr. Henry A. Christian, Hersey Professor of the Theory and Practice of Physic, Harvard, and Physician-in-Chief, Peter Bent Brigham Hospital, will give a series of clinics which members of the medical profession are cordially invited to attend. The next clinic will be given on February 9.

Physicians and medical students are also invited to attend ward rounds of the Medical Staff of the Peter Bent Brigham Hospital held from 10-12 o'clock on Saturdays, as well as a clinical-pathological demonstration immediately following these rounds.

LAWRENCE CANCER CLINIC

Lawrence, Massachusetts,
January 27, 1933.

To the Physicians of Essex North District:

Dear Doctor:

The regular Lawrence Cancer Clinic, to be held at Lawrence General Hospital, One Garden Street, Lawrence, upon Tuesday, February 7, at 10 A.M.,

sharp, will be a Demonstration Clinic with Channing C. Simmons, M.D., of Boston, Associate in Surgery at Harvard University Medical School, and Acting Surgeon-in-Chief to Collis P. Huntington Memorial Hospital, Boston, present as consultant. You are invited to accompany any of your patients whom you desire shall have this service, or to send them with a note, and a report will be returned to you. This service is gratis. Your attendance at the Clinic is always welcome.

Committee

ROY V. BAKETEL, M.D.,
CHAS. J. BURGESS, M.D.,
FRED'K D. MCALLISTER, M.D.,
JOHN J. MCARDLE, M.D.,
HARRY H. NEVERS, M.D.,
THOS. V. UNIAC, M.D.,
J. FORREST BURNHAM, M.D., *Chairman.*

RADIO HEALTH MESSAGES

FEBRUARY-MARCH, 1933

Sponsored by the Public Education Committee of the Massachusetts Medical Society and the Massachusetts Department of Public Health.

Courtesy WBZ. Tuesdays, 4:15 P.M.

February

7 The Heart
14 Your Title to a Job
21 Why a Health Department?
28 Effects of Fatigue

March

7 Vacation Health
14 The Use and Abuse of Serums and Vaccines
21 Can We Prevent Diabetes?
28 Hobbies and Health

STATE HOUSE BROADCAST

Sponsored by the Massachusetts Department of Public Health.

Courtesy WEEI. Fridays, 12:45 P.M.

Health Subjects of Public Interest discussed by the Division Directors of the Department.

RADIO HEALTH FORUM

Queries from the public are answered under the sponsorship of the Department of Public Health.

Courtesy WEEI. Fridays, 4:50 P.M.

Questions on Health and Prevention of Disease may be sent to Radio Health Forum, State Department of Public Health, State House, Boston.

HARVARD UNIVERSITY

FREE PUBLIC LECTURES ON MEDICAL SUBJECTS

The Faculty of Medicine of Harvard University offers a course of free public lectures on medical subjects, to be given at the Medical School, Longwood Avenue, Boston, on Sunday afternoons. The lectures will begin at four o'clock and the doors will be closed at five minutes past the hour. No tickets are required.

SUNDAY AFTERNOONS AT FOUR O'CLOCK

February 5—Dr. G. P. Grabfield: Rheumatism.

February 12—Dr. G. H. Wright: Color Changes in the Mouth and Teeth: an Aid in Diagnosis of Systemic Disease.

February 19—Dr. W. H. Robey: Let the Head Govern the Heart.

February 26—Dr. H. R. Viets: Nerve, Nerves, and Nervousness.

March 5—Dr. E. L. Oliver: The Care of the Skin and Scalp.

March 12—Dr. Shields Warren: Cancer and Radiation Therapy.

March 19—Dr. Randall Clifford: The Tuberculosis Problem Today.

March 26—Dr. W. G. Smillie: A Discussion of the Common Cold.

REPORTS AND NOTICES OF MEETINGS

BOSTON CITY HOSPITAL STAFF CLINICAL MEETING

The stated meeting of the Boston City Hospital Clinical Staff was held in the Cheever Amphitheatre on Wednesday, December 28, 1932, at 8:15 P.M. This meeting was under the auspices of the Gynecological and Obstetrical Service. Dr. Robert M. Green presided, and opened the program with "Introductory Remarks on the Work of the Gynecological and Obstetrical Service."

Dr. Green stated that during 1932 there has been a rapid increase of patients. This increment does not follow the curve of population growth, and therefore it is necessary to plan for greater expansion of facilities to care for new patients. The demands on the staff have been excessive, with the rapid rise in admissions to the wards and out-patient department, and the staff of the service recommended an increase in their number as well as one interne and student help. These recommendations have been approved, and it is hoped that this will facilitate the handling of the patients.

Dr. Green presented the following statistics for the Obstetric Service from December 1, 1931 to December 1, 1932:

Admissions		3828	
Deliveries		3439	
Normal deliveries		746	
Forceps	"	645	67%
Caesarean	"	96	10%
Breech	"	88	15%
Footling	"	61	
Version	"	56	8%
Twins		31	
Maternal deaths		13	0.38%
Stillbirths		109	2.8%

In discussing the statistics, the speaker indicated that the ratio of normal to operative deliveries was approximately two to one. These figures for forceps cases correspond closely to those in private practice. The fetal mortality was 2.8 per cent, prematurity accounting for nearly two-thirds of the cases. Therefore the fetal mortality at birth is approximately 1 per cent. The success in reducing the maternal mortality to 0.38 per cent is attributed in part to the clinical supervision of the cases in the out-patient department.

Dr. John T. Williams discussed "Primary Carcinoma of the Vagina." In the clinic of the Boston City Hospital it occurs once to 1,000 cases of cervical carcinoma. The symptoms of these two conditions are identical, consisting of bleeding after the menopause, or between periods and menorrhagia in women who have not reached the climacteric. This is usually followed by a profuse, watery, blood-tinged, foul discharge. The following case history was presented: The patient was first seen on April 29, 1930, when she complained of a severe hemorrhage two weeks previously, followed by a constant oozing up to the time of her admission. Vaginal examination revealed a cauliflower-like growth on the posterior vaginal vault. It was decided to perform a biopsy and at the same time implant the growth with radium.

When this was attempted on May 8, the bleeding following the biopsy was so profuse that a total excision of the growth had to be made. At the same time 2000 millicurie hours of radium were given to the area. The pathological report from Dr. Mallory was epidermoid carcinoma. To date there have been no signs of recurrence. Dr. Williams showed a lantern slide taken from the microscopic section of the growth.

Dr. Frederick L. Good spoke about "The Course of Pregnancy and Labor following Operations for Suspension of the Uterus." The speaker stated that he was able to recall the various stages through which this operation has passed. When he was a student, the Alexander operation was in vogue, and later it was followed by the Gilliam method. Most surgeons are now suspending the uterus by the round ligaments; the proponents of this procedure advocate it, because it does not cause trouble during pregnancy and labor. The speaker stated that in his experience, the best operation is that of sewing the fundus to the anterior abdominal wall. He stated that he had operated upon many cases with round ligament suspension, and in these has often found different results from those that the operation was intended to effect. The reason for this is that the round ligament suspension tends to interfere with the blood supply to the uterus and adnexa. In one of his cases Dr. Good found a complete absence of one round ligament following a suspension operation, and he attributes this to a probable sloughing of the part owing to an interference with the blood supply.

The operation advocated by Dr. Good is sometimes objected to on the ground that it leads to adhesions and strangulation of the small intestine. The speaker stated that there is less opportunity for strangulation with one point of suspension than with two points between which the bowel can prolapse and thus strangulate. The technique employed consists of suturing through the rectus muscle, the peritoneum and the fundus. This method has an advantage over suturing only to the parietal peritoneum, in that, if the uterus pulls, it exerts traction on the entire abdominal wall.

Simple as this operation is, it is often done carelessly, and this explains the difficulty that some patients have during labor. The uterus is not suspended half way between the umbilicus and symphysis pubis, but low on the anterior abdominal wall. Also the sutures are not placed on one or the other side of the fundus, but at the midpoint.

Dr. Good stated that he has delivered 15 or 20 patients after this operation, and none had trouble with the pregnancy or labor.

Dr. Green stated that his experience with operations for suspension had been the same as that of Dr. Good. The reason that the operation has fallen into disrepute is that the surgeon often does a fixation rather than a suspension. The difference between the two consists of the area of adherence. The greater area gives fixation which does not yield during pregnancy, and an area of approximately one square centimeter gives a suspension.

Question: What happens to the suspension after a pregnancy?

Dr. Green: The uterus returns to the position of the suspension.

Dr. Good: I have seen only one case in which the uterus returned to the position of retroversion, and this was corrected after wearing a pessary for two weeks.

Dr. Cohen spoke about the "Toxemias of Pregnancy." During the past year and three months, all the toxemia patients entering the City Hospital have been referred to a special toxemia clinic for study; during this time there have been 110 patients in this clinic. The nephritic cases may be divided into three groups.

1. Chronic Nephritis. (a) Patients with no changes save a somewhat elevated blood pressure, a little albumin and a few casts. (b) Cases with a chronic nephritis that may develop into an acute phase during pregnancy. Those cases with a positive history usually give a story of kidney trouble during a former pregnancy. The changes in the non-protein nitrogen, carbon dioxide combining power and uric acid are not very important. In some of the cases with a blood pressure of 200 or over, the patient may go on to term,

may have an early delivery or deliver a macerated fetus.

2. Classical Nephritis. In these patients one finds visual disturbances, abdominal pain, and red blood cells and casts in the urine. These patients may separate their placentae or go on to eclampsia.

3. Acute Nephritis. (a) Cases without eclampsia tend to show toxic manifestations late in pregnancy. Nausea, edema, visual disturbances, and headache may be present in part or all. The rise in blood pressure is often sudden. The blood chemistry shows a rise in the nitrogenous elements, and the phenolsulphonphthalein test is low, reaching 10-15 per cent at times. The response of this group to treatment varies; a termination of the pregnancy may take place. (b) Patients with eclampsia usually have edema and anuria. Granular casts are found in abundance in the urine, the blood pressure is high, and the patient is often obese.

In toxemia the extremities are cold, and some clinicians feel that there is primarily a disturbance with the heating mechanism of the body and particularly with the heat elimination. This question has not been investigated by the clinic owing to the lack of equipment.

Dr. Cohen directed his closing remarks to the question of therapy. The kidney disturbance in eclampsia may be due to a spasm of the kidney vessels and hypnotics are probably beneficial. Curtailment of protein may be distinctly harmful to the patient, especially in passing through a difficult labor. Eggs and salt should be limited, but otherwise the diet should be aimed at adequacy. Purging should not be too drastic, and two or three loose movements in 24 hours is the desideratum. Twenty cc. of a 10 per cent solution of magnesium sulphate repeated in four to ten hours produces good results, and also tends to lower the blood pressure. It should not be continued over a long period of time because of the irritative effect upon the bowel. Intravenous glucose is of distinct value. It may be used in concentrated form or in 5 to 10 per cent solution depending upon the state of the kidneys. Seven and one-half to fifteen grain doses of sodium amytal have been used intravenously with success in controlling convulsions.

In terminating the pregnancy, one should be conservative. In bleeding cases, the Dublin method is best except where there are indications for cesarean section. The method of balancing fluid intake with fluid output is being studied particularly by the clinic at present, and it is hoped that the results of this investigation will be available in the near future.

Dr. Reginald D. Margeson presented several cases illustrating "Treatment of Carcinoma of the Uterus."

Case 1. This patient was first seen on March 14, 1922, at which time she was fifty-three. She had passed through her climacteric five years previously and had noticed slight vaginal bleeding during the past four years. Examination revealed a cervix that bled easily, and the biopsy report was epidermoid carcinoma. Radium was applied both into the uterine canal and into the cervix directly. There has been no recurrence of symptoms.

Case 2. This patient, aged 52, was seen on June 29, 1922, when she complained of watery, blood-tinged, vaginal discharge. Examination showed a thickening in the left vault, and the biopsy report was carcinoma of the fundus. She was given three separate treatments with radium during July and August of that year, and in October a panhysterectomy was done. Dr. Mallory was able to find no trace of carcinoma in the surgical specimen.

Case 3. First seen on October 13, 1923, aged 51. She had passed through the menopause one and one-half years previously, and during the past six months had had two hemorrhages. Vaginal examination showed a hard, eroded cervix. She was given two large doses of radium; she developed a rectovaginal fistula which closed in four months. The patient has since had a growth on her cheek, which also responded to radium therapy. This year she has noticed a slight discharge of blood from the vagina, and has been subjected to deep x-ray therapy.

Case 4. Was first seen on January 27, 1931, aged 67 (20 years postclimacteric). There was a protruding mass from the vagina, a history of recent bleeding, and edema of both feet. The patient was suffering with complete procidentia. A vaginal hysterectomy was performed on February 27, 1931, and the specimen showed malignant adenoma, colloid carcinoma, and epidermoid carcinoma.

Case 5. This patient was first seen on January 16, 1932, aged 66. She had had a supravaginal hysterectomy 24 years previously. She complained of blood-tinged discharge during the past six months. Examination showed a large, boggy, red cervix, and the biopsy report was epidermoid carcinoma. She was treated successfully with radium.

Dr. Benedict F. Boland spoke on the "Treatment of Endocervicitis by Coring of the Cervix with the Radio Knife." The speaker stated that the dampened electrical current is used in surgical procedures. Diathermy heats to 116 degrees, desiccation from 116-122 degrees, coagulation from 122-140 degrees, and the cutting or radio knife from 140-160 degrees. The radio knife should not be used in treatment of cervical conditions unless the surgeon is ready to do a laparotomy in case of necessity. In cases of endocervicitis that are treated by diathermy, one finds positive cultures after the treatment and a flare-up of the old infection. It is, therefore, of no particular benefit in this condition.

When the etiological agent is the gonococcus, one

should wait until the acute infection has subsided; otherwise the treatment of endocervicitis is much the same regardless of the etiological agent. It consists of introducing a speculum into the vagina, placing the radio knife one-eighth of an inch from the cervix and starting the current. The knife sears the tissue as it progresses and cores out the cervix. The speaker illustrated his remarks with lantern slides, among which were drawings made from cases that showed the original lesion, the slough that forms after treatment and the healed cervix.

Dr. Boland also showed x-ray films of the female genital tract injected with lipiodol. Polyps in the cervical canal often show up as a small area of diminished opacity in the cervical region. Fibroids of the submucous type distort the smooth outlines of the uterine cavity. By this technique one can readily demonstrate the patency of the uterine tubes.

Dr. Emilio D'Errico spoke about "Inversion of the Uterus." This is a rare condition, but nevertheless is a very important complication during labor. The etiology is uncertain, but too violent Crédé has frequently been blamed. The speaker emphasized the importance of hypotonus in the lower uterine segment and the presence of cervical tears. The inversion may be acute, subacute or chronic.

The acute cases are treated successfully by manual replacement. The speaker illustrated this method by lantern slides. It consists of (1) dilatation of the cervical ring with the right hand, (2) pushing up of the fundus and reinverting it gradually by beginning at the cervical region and working entirely on one side, (3) retaining the left hand inside the uterus after the reposition and massaging with the right hand until the uterus contracts. Pituitrin should also be given at this stage.

When the ring cannot be stretched, another procedure is indicated. This is usually true in the subacute cases, which include most of the cases of one hour's standing or longer, although the speaker has used the manual method successfully in a case that had gone for 12 hours before treatment. A laparotomy is performed, and by means of Allis forceps, the uterus is gradually drawn up into its original position.

In the chronic cases this operation is difficult, if not impossible. The Spinelli and Findley operations are both used for the treatment of this condition, and the speaker prefers the former because of the lower incidence of postoperative infection.

Dr. Kenneth G. Farnsworth spoke on "Trichomonas Vaginalis." This is a fairly common cause of leucorrhea. Clinically it consists of an acute vaginitis with punched out areas on the cervix, and frequently the vulva and adjacent skin are affected. Itching and discharge are usually the chief complaints. If one treats the discharge with warm salt solution and examines it under the microscope, flagellated organisms with granules and vacuoles may be seen. These are slightly larger than a pus cell. The treatment of this condition consists chiefly of two or three office visits weekly, when Lassar's paste is applied on tampons to the distended vagina. The abundant culture medium during the menses often interferes with the satisfactory progress of the cure. The patient is given salicylic acid ointment for home use. Ninety per cent of the patients are cured under this régime.

Dr. S. J. Maddock spoke on "Blood Chemistry Study in a case of Acute Yellow Atrophy of the Liver During Pregnancy." The patient was a 35 year old VI para that had been treated in the out-patient department as a prenatal case. She had a positive Kahn and was started on neoarsphenamine injections. After the third injection she became jaundiced and was sent to the first Medical Service. Although she was not very ill, her blood showed the changes characteristic of acute yellow atrophy. There was a low urea, non-protein nitrogen and sugar. There was some argument as to whether the uterus should be emptied. Some thought that the fetal liver might help the mother during the acute stage of the disease, but on the recommendation of the obstetrical service the uterus was emptied. The blood from the umbilical cord showed a higher urea content than that of the mother, and the blood urea determination on the patient rose gradually after the termination of pregnancy. The blood changes in acute yellow atrophy are similar to those found in dehepatized animals as illustrated by slides shown by the speaker.

In this case the baby and mother both survived. Three weeks after leaving the hospital, the patient showed a large knob of liver substance palpable in the upper abdomen. This was thought to be regenerating liver substance, which is not palpable at present.

Question: Was the acute yellow atrophy due to the injections or the pregnancy?

Dr. Maddock: It was probably due to the neoarsphenamine.

Dr. Benjamin Tenney, Jr., gave the final paper of the evening on "Pregnancy Complicated by Cirrhosis of the Liver with Successful Termination." The patient illustrative of this condition was a 30 year old American housewife first seen in May, 1930. In 1923 she had been examined at another hospital and the liver found enlarged. In 1925 she had infectious jaundice and was kept on a low carbohydrate diet for three weeks. She recovered and the jaundice disappeared gradually after three months. During the next two years she felt quite well save for gas and sour eructations. In 1927 she again had an attack of jaundice with nausea, ascites, sour eructations and gas. X-ray films showed fixation of the first and second parts of the duodenum. An exploratory

laparotomy revealed a normal gallbladder, stomach, and duodenum. The liver was nodular and a clinical diagnosis of cirrhosis made. One week later the ascites and jaundice deepened, and then shortly thereafter she had a sudden diuresis with a disappearance of the ascites and rapid clinical improvement.

When the patient was first seen she was complaining of indigestion and some bloating of the abdomen. She had some ankylosing arthritis, the liver was palpable, the spleen was not felt, and there was slight pitting edema of the ankles. There was no jaundice or ascites. The patient refused to have her pregnancy terminated, and was placed on a high carbohydrate diet. She had some vomiting, nausea and blurring of her vision, but her blood pressure did not rise over 115/90. During the ninth month of pregnancy a cesarean section followed by sterilization was performed. The baby and mother did well.

Three months postpartum the liver was two fingers below the costal margin. Eighteen months after the delivery the mother reported that she had had sick headaches during the past year relieved by vomiting. Her liver was three fingers below the costal margin and seemed slightly larger than it had three months antepartum. The only abnormal laboratory findings at this time were a slightly abnormal sugar tolerance curve, and an increase in the blood fatty acids. It was remarked that one hour before delivery the fatty acid content of the blood was very high, and that since delivery it has remained so, tending gradually to reach a lower level.

The speaker stated that from this study it is suggested that the liver does not play a major rôle in the toxemias of pregnancy.

ESSEX NORTH DISTRICT MEDICAL SOCIETY

The ninety-second semi-annual meeting of the Essex North District Medical Society was held on January 4 at the Haverhill Girls' Club Banquet Hall, at 36 Main Street, Haverhill, at 12:30. After a dinner, at which fifty-eight were present, there was a short business meeting. Dr. Snow of Newburyport invited the Society to hold its annual meeting in May at the Country Club in Newburyport. The motion was made and adopted that the By-Laws be suspended and the invitation accepted.

At 1:50 P.M., Dr. Richard M. Smith, Professor of Pediatrics at Harvard and a member of the Committee on the Costs of Medical Care, was introduced and discussed the report of the Committee from the viewpoint of the majority of its signers.

Dr. Smith said in part, that the Committee organized at Washington in May, 1927, consisted of representatives of the medical profession, including practitioners, public health workers, and representatives from the laity. There were twenty-four doctors, sixteen of whom signed the majority report. Two of these doctors were past presidents of the American Medical Association. The Committee collected facts for four years, digesting these facts during the final year.

It was pointed out that the present situation is unsatisfactory, not only to the people who give the medical service, only ten per cent of whom are physicians, but to the patients as well. Further that there are enough physicians in the country but the difficulty lies in the improper distribution of them; that there are too many specialists in proportion to general practitioners and that there is no adequate standard for the specialist. People in the middle class, economically, receive the least care in proportion to their means. Fifty per cent of the people have incomes under $4200. Incomes in some sections of the country are extremely low and people with low incomes in rural communities do not receive so much care as do those of the same class in the city where there are many free clinics. Dr. Smith reported that, of nine thousand white families in one group with an income of $1200 or less, eighty per cent had a total medical expense of less than $60 per year (charged but not paid). In 1929 the average net income of a third of the physicians was less than $2500, despite the prosperity at that time. The average overhead expense of a physician is about forty per cent of his gross income; about twelve per cent of the physicians of the country are on salary. Dr. Smith stressed the present financial troubles of all hospitals, some of which may find it difficult to carry on.

He emphasized the fact that any application of the recommendations of the Committee should be worked out on a regional basis and evolve gradually from a small nucleus. The Committee has suggested that the community hospital, managed by trustees who receive no compensation and supported by community funds contributed privately, is an ideal nucleus around which to group doctors, dentists, nurses, pharmacists and others interested in medical care. Dr. Smith emphasized the essentials to control such organizations: (1) the preservation of personal relationship between patient and physician; (2) the importance of preventive medicine; (3) coördination of the collective resources of these groups by an organization in the community; (4) mechanism to guide patients to good doctors; (5) adequate and secured payments to the individuals who furnish the care.

He stated that the Committee regretted the diminishing prominence of the general practitioner and urged efforts to check it, stressing that the general practitioner is the key man in furnishing medical care.

In the development of the group plan, the family physician should be the key man and the patients should go to the one whom they consider as their family physician. The specialists in the group should be under his control, so far as the care of the patient is concerned. He mentioned other groups

organized for medical care, including industrial, where the care is furnished by a mill which dominates the community industrially; the university, such as is exemplified by the Dartmouth group at Hanover, N. H.; also the private groups. He cited the organization of groups by county medical societies which has already been initiated. This system has been approved by the minority report of the Committee as of great value.

According to the Committee, the physician is not now receiving adequate compensation; there is an absolutely unjust and unwarranted burden on the physician in caring for patients unable to pay. This burden should fall on the community.

Dr. Smith pointed out that there are large groups of the middle class that could pay the adequate cost of medical care if it were budgeted over a period of years on an insurance basis. He urged that groups be organized, for example, teachers, who would contribute on a monthly basis, perhaps three dollars a month, for this would probably pay the cost of care of the average individual. For those not able to pay, the others would be assessed whatever amount was consistent with their income, and the Family Welfare Society, the employer or the community would make up the deficit. He pointed out that the public now pays for the care of the indigent, the tuberculous and the insane, that the group payment principle goes back to the burial funds of Ancient Rome and that the first modern sick benefit insurance act was passed in Germany in 1883. The same causes which initiated this plan in Germany are operating in the United States today and will undoubtedly be met in a similar way, it is hoped without some of the disadvantages evident in the European system. He stated that there is, in the medical societies of Germany, France and England, dissatisfaction as to some handicaps imposed by the insurance plans, but that they would not return to the conditions which existed prior to the present system.

It is hoped that, when health insurance begins in this country, the matter of cash benefits will be entirely separate from the costs of medical care, because the linking of these two has made a great deal of trouble in Europe. The Committee has urged that a voluntary plan of insurance be tried in this country and compulsion be not introduced, if at all, until the Americanization of the idea shows how it can best be administered.

Dr. Smith expressed the opinion that, within two or three years, some of the western states would introduce compulsory systems of health insurance. Speaking about the differences between the majority and the minority reports, he said that many of us could easily sign both reports; that the recommendations were not so different in principle as in method. He urged that no formal indorsement of either majority or minority is practicable. He said there are already large agencies ready to go to work, policies ready to issue, as soon as the laws are enacted. These are some of the agencies that have made the system unsatisfactory in European countries. The groups already operating in Brattleboro, Vermont, and New Bedford, Massachusetts, were mentioned.

At the conclusion of the address, there was a very interesting informal discussion. The Fellows were of the opinion that the profession should organize groups in the county, or in separate communities of the county, to consider how the plan might relate to individual communities.

The British Medical Association spent $150,000 trying to adjust medical defects in the British Medical Insurance Act because it had failed to do this while the plans were in the formative stage. The French Medical Association spent 1,000,000 francs because of the same lack of foresight. Shall we profit by their example?

E. S. Bagnall, *Secretary.*

BOSTON MEDICAL HISTORY CLUB

At the second meeting of the Boston Medical History Club, December 19, 1932, Dr. Paul D. White, who paid a visit to Greece and the Grecian archipelago, including Crete and the Dodecanese Islands off the coast of Asia Minor, during the spring and early summer of 1932, gave an interesting account of what remains of the old shrines famed in the days of the Asklepiads and made it vivid to us by the moving picture camera. He presented first a brief review of the historical development of these shrines, beginning about 3,000 B.C., with Imhotep of Memphis in Egypt, who in addition to being a government official, an architect and a magician, was the first known physician who later became deified as the Egyptian god of medicine. It is likely that his mantle descended through the intermediation of venturesome Phoenician, Minoan and Grecian traders and explorers, to the Greek Asklepios at Trikka in Thessaly between 1,500 and 1200 B.C.; Asklepios, at first a hero and chieftain, became in his turn invested with the attributes of Apollo, the medical divinity of Grecian mythology. Quotations from the Odyssey and Iliad of Homer illustrated the knowledge of Egyptian drugs in Greece and the participation of the sons of Asklepios, Machaon and Podalirios, in the Trojan War in the "prehistoric" days of 1,200 to 1,000 B.C. Then came the progressive spread of the shrines to Asklepios throughout Greece and the surrounding seas, with their development in a number of cases as health resorts, the most noted of which was at Epidauros in the Peloponnesos, or as medical schools, the leader of which was that on the island of Kos.

A realistic picture of the experience of Marius the Epicurean* when he visited one of the Roman temples of Aesculapius (Asklepios) in search of treatment was quoted, presenting an interesting glimpse of the way in which, even in those early

*Walter Pater, Marius the Epicurean.

days, psychic effects of various sorts, coupled with physical methods of treatment, all carried on in surroundings that made their appeal to the sensibilities of the patient, were skillfully blended, as they may be today in a modern sanitarium. Further quotations were given from Aristophanes' satirical account in his comedy Plutus of a night passed in a temple where we surreptitiously observe the behavior of the temple priests when, out of character, they take advantage of the credulity of their patients and practice all sorts of hoaxes upon them; this is in striking contrast to Walter Pater's pleasant narrative of a similar but happier experience. Doubtless, human nature was the same then that it is today. Most of the several hundred temples of the Asklepiads, situated on the Grecian mainland and archipelago, were located with reference to the possession of a healthful environment, a suitable exposure, proper drainage, pure water and other essentials for good hygiene. Some of these temples achieved more renown than others, dependent more or less upon the fame of the attendant priest-physicians. In the chronological order of their establishment Epidauros, Knidos, Kos, the reputed birthplace of Hippocrates, 460 B.C., and the site of the school made famous by his teaching, Rhodos and Pergamos (Galen's birthplace, 130 B.C.) were the most famous of the hospital schools. These medical centers, as they might be termed in modern parlance, were laid out after much the same general plan, often on two or three different levels, comprising the abaton for patients for their "temple or incubation sleep" (an arcade or gallery adjoining the temple to Asklepios), treatment rooms, baths, gymnasia, amphitheaters, and stadia for the accommodation of large numbers of spectators at plays, concerts and athletic contests; the amphitheater at Epidauros, it is estimated, could seat 20,000 persons. Reconstruction of these temples indicates that they were often architecturally designed in the best Greek style and were renowned for the possession of sculptures and paintings that were representative of the best art of that period. One of the mimes of Herondas, which was read by Dr. White, describes a few of the masterpieces, which were on exhibit at the shrine of Asklepios at Kos. Nearly all of these pagan works of art along with the medical and other records which slowly accumulated in the libraries of these medical centers were destroyed when the shrines were abandoned; a few were removed and saved for posterity.

In this development of ancient Greek medicine there is to be recognized a conception of the nature of disease and the importance, in certain types of physical and associated mental disturbance, of appealing to the individuals' finer sensibilities in order to change their mental attitudes and direct their energies into quieter channels. Hippocrates and his school evidently recognized the value of the psychic features of temple treatment and fitted them into a scheme of therapy which revolutionized the old order and substituted a more rational system for one which had been based almost wholly upon superstition and chicanery under priestly authority. At any rate, much that Hippocrates stood for has found favor with the modern exponents of scientific medicine.

Moving pictures served to bring before the audience the ruins at the sites of several of these famous temples (at Epidauros, at Kos, and at the Acropolis in Athens), the ground plans of them, so far as descriptions in literature permit, and reconstructions of their exteriors based upon the pillars, mosaic floors, stone benches, wells and remains of labyrinthine passages which cover the ground where they were placed. From maps and photographs of the scenery surrounding many of these temple sites, it was possible to obtain a very good idea of the geographic relations of these localities and of the influence which environment must have created in carrying out the therapeutic programs of the physicians in charge. Dr. White was successful in bringing to his hearers much of the inspiration which a visit to these ancient medical centers had evidently imparted to him.

MASSACHUSETTS SOCIETY OF EXAMINING PHYSICIANS

The Massachusetts Society of Examining Physicians held the stated dinner and meeting on Wednesday evening, December 7, 1932, at the Copley Plaza Hotel. Dr. P. F. Butler, Roentgenologist of the Boston City Hospital, gave the first address of the evening on the subject "Industrial Injuries: X-ray Evidence Disclosing Conditions Which may be Overlooked on Clinical Examination."

Dr. Butler limited his discussion to the symptom of pain in the shoulder and the great variety of clinical conditions which may give this as the only evidence of disease. The speaker prefaced his remarks by stating that the x-ray is of value in diagnosing many diseases, but that it fails to give any evidence in certain conditions where it would be of invaluable assistance to the physician. Such a condition is acute osteomyelitis, in which the x-ray gives no evidence of bone change during the early days when operative treatment is highly desirable. Slides of x-ray films were shown to illustrate the conditions that can give rise to pain in the shoulder.

The causes of shoulder pain may be direct and indirect. The direct causes concern the structures of, and immediately surrounding the joint. The indirect causes may be divided into (1) those of the cervical region which involve the nerves supplying the shoulder; (2) those in the thorax and abdomen which act reflexly through the phrenic nerve.

A fracture in the vicinity of the shoulder, regardless of the bone involved, gives pain referable to the joint. A film was shown of a metastatic

carcinoma in the head of the humerus. In this case the pain caused by the metastasis was the first symptom of the malignant disease.

Mechanics who work beneath automobiles, paper hangers, and other men using their arms in abnormal positions, often develop pain in the shoulder upon abduction and external rotation of the arm. X-ray films of the shoulder in such cases reveal oftentimes a dense shadow. This has been interpreted to be calcification in the bursa. Recently it has been shown that these bursae are frequently filled with an amorphous fat, opaque to the x-rays which disappears following treatment with diathermy. In commenting on this condition, Dr. J. W. Sever stated that in his opinion such bursae rarely give symptoms and that muscle injury is the important factor in causing shoulder pain.

The speaker next considered cervical conditions in the production of shoulder pain. These act by impinging upon branches of the brachial plexus which supply the shoulder. The one that is seen quite frequently is the cervical rib. In older people arthritis of the cervical spine gives rise to this symptom. This is usually a hypertrophic process involving only the lower four cervical vertebrae and gives symptoms of pain when the posterior lip of the intervertebral foramina is affected. Strangely enough such pain subsides when adjacent vertebrae fuse.

Inflammatory conditions such as tuberculous glands may irritate the branches of the brachial plexus and, as they undergo exacerbations, one will find a concomitant shoulder pain.

In considering more remote conditions that give shoulder pain, the speaker stated that they act largely through the phrenic nerve. The pleura and diaphragm are supplied by branches of this nerve, and since this arises from the same roots as part of the brachial plexus, irritation of the diaphragm and pleura may give a reflex shoulder pain. A very remarkable case of aneurysm was illustrated. The patient was a mail carrier who had climbed stairs and walked many miles every day for 25 years, and whose only symptom on admission was shoulder pain.

Hodgkin's disease of the mediastinum gives symptoms that depend upon the structures compressed. When it affects the phrenic nerve, it may cause shoulder pain. This disappears with the diminution in the size of the mass following x-ray therapy. As the tumor is treated at successive intervals, it gradually becomes resistant and unresponsive to the rays.

Dr. Butler showed films from a very striking case of pulmonary tuberculosis. This patient entered with the sole complaint of pain in the shoulder, but x-ray plates of the shoulder showed a diffuse process involving all of the visible lung field. This case illustrated the necessity of including in x-ray films of the shoulder also a part of the chest. It is the policy at the Boston City Hospital to embody in the shoulder films the cervical spine and a good part of one lung field.

Abdominal conditions seem rather far removed from the shoulder, yet there are diseases of the abdominal viscera which will give pain in this joint presumably through irritation of the diaphragm. Gallbladder disease is one of the more common of such conditions. The speaker showed films from a case of duodenal ulcer with shoulder pain, and also a case of carcinoma of the stomach with a similar complaint.

Dr. J. W. Sever, in discussing the subject, emphasized the fact that the x-ray is of no value in early osteomyelitis. Given a child with systemic reaction of infection and fingerpoint tenderness along the shaft of a bone as well as a negative x-ray film, the probabilities are in favor of acute osteomyelitis.

Mr. Charles F. Horan of the Arrow Mutual Liability Insurance Company spoke about "The Increased Cost of Compensation and the Medical Profession." He pointed out how the insurance rates to employers in Massachusetts have been mounting steadily since 1911, and how this one item is instrumental in driving large industry away from this state to localities where rates are more reasonable. The speaker attributes the rapid rise in the cost of insurance partly to the physicians. Physicians often testify about medical conditions, concerning which they know nothing.

Employees should not be allowed to select their own physicians in case of injury, for they often are incapable of choosing those best qualified to treat their conditions. It works out for the benefit of all parties concerned when the insurance company is allowed to furnish the necessary medical care to the patient. General practitioners often receive fees of the specialist in treating insurance cases. Mr. Horan considers this unfair to the insurance company and believes it is another important item in increasing the insurance rates.

THE SOUTH END MEDICAL CLUB

Dr. Horace Binney, who is on the staff of the Boston City Hospital and is Professor of Surgery at Tufts College Medical School, discussed Pulmonary Embolectomy at the meeting of the South End Medical Club held at the Boston Tuberculosis Association office on January 17, 1933. "Efforts to remove the danger of pulmonary embolism following surgical operations have so far met with little success," said Dr. Binney.

The possibility therefore of fatal pulmonary embolism remains as a sword of Damocles. The statistics on the frequency of embolism vary. Kirschner estimated it to be about half of one per cent following operations of all types. Cordier found it about two per cent after operations on the abdomen. Giertz collected 239 cases of all degrees of severity in one hospital in six years, of which 38 were fatal.

Trendelenburg was the first to conceive the possibility of removing the embolus from the pulmonary artery, and in 1914 described the operation on pulmonary embolectomy. He devised the special instruments necessary. He attempted the operation without success on 12 patients. Little attention was paid to the operation until Kirschner reported a successful case in 1924. This stimulated others, especially in Scandinavia, to attempt it, and by 1927 five successful cases had been reported. Since that time two others have been reported. Of 16 cases reported, seven have been successful. The technique of the operation was described and indications discussed. In making the diagnosis other causes must be excluded, such as sudden cardiac failure, coronary thrombosis, heart block and acute pneumothorax.

The reader stated that it was his belief that, in every large hospital, members of the resident staff should prepare themselves by practice on the cadaver to perform this operation and the equipment should be at hand. Since sixty per cent of the patients survive from one to three days, there is an opportunity to save life by this means greater than has been appreciated in the past.

A demonstration of the various instruments used at the Boston City Hospital in these operations was given by Dr. Binney.

PLYMOUTH DISTRICT MEDICAL SOCIETY

The regular meeting of the Plymouth District Medical Society was held at the Brockton Hospital on Thursday, January 19, 1933. The meeting was called to order by President of the Society, Dr. Charles G. Miles, at 11 o'clock in the morning. The records of the previous meeting were read by Dr. George A. Moore, secretary. The censors' report was read by Dr. George A. Moore; and Dr. Stanley Peterson, Dr. Rudolph Kruger and Dr. John Carriuolo were introduced as new members of the Society. The treasurer's report was read by Dr. Alfred C. Smith and showed the Society to be in good financial condition.

Dr. Leroy E. Parkins, one of the Committee on Postgraduate Education of the Massachusetts Medical Society, gave a short talk to the members on the program outlined by the Massachusetts Medical Society, for the benefit of the county society.

There being no further business, the business session adjourned. Dr. Miles then turned the meeting over to the staff of the Brockton Hospital. Dr. M. Frank Barrett, chief surgeon of the Brockton Hospital, was in charge of the program. He first introduced Dr. George A. Buckley, surgeon at Brockton Hospital, who took for his subject "Unusual Urinary Bladder Complications Following Trauma." The case that Dr. Buckley demonstrated was that of a young man who had been in an automobile accident, who was present during the demonstration. In this accident he had had a fracture of both femurs and after he had recovered from the accident a bladder complication followed. An x-ray picture demonstrated the presence of a very large stone which was afterwards removed, by operation.

Dr. Barrett then introduced Dr. Fred F. Weiner who took for his subject "X-ray Findings in Urology" (with lantern slides). Dr. Weiner showed 50 or more lantern slides of the x-ray findings. He demonstrated each of them and gave a very fine talk on his subject.

The next speaker, introduced by Dr. Barrett, was Dr. Charles D. McCann, Obstetrician of the Brockton Hospital, who reported an unusual case of twins, complicated by placenta previa. Dr. McCann personally supervised this case and read a very fine report of it.

The next speaker was Dr. W. G. Walker, internist of the Brockton Hospital, who took for his subject "Insulin Angina." Dr. Walker was brief in his remarks, but gave a very complete picture of his cases.

Next to be introduced was Dr. Loring B. Packard, x-ray specialist of the Brockton Hospital, who took for his subject "Fractures from the X-ray Point of View." Dr. Packard showed numerous pictures of fractures that had been taken recently in his department. They were all very interesting.

The last speaker of the morning was Dr. B. F. Bornstein, former intern at the Brockton Hospital. His subject was "A Short Résumé of Our Experiences During the Past Year with Aschheim-Zondek Test for Pregnancy." Dr. Bornstein went into detail regarding the examination of the urine from the different cases he had seen. His talk was very interesting. His paper was discussed by Dr. Jonah Fieldman. Dr. Fieldman is also engaged in this work, and gave a most interesting discussion.

After the program of the day was finished, the members of the Society were invited into the large dining hall of the Brockton Hospital where a very fine dinner was served by the staff. Dr. Fred Hollister, superintendent of the Brockton Hospital, Dr. M. Frank Barrett, chief surgeon, and the Brockton Hospital Staff were given a rising vote of thanks for their hospitality.

This was the largest meeting of physicians ever held at the Brockton Hospital. The large room where the demonstrations were held was packed to overflowing, with surgeons and physicians from all over Plymouth, Norfolk and Bristol Counties. The discussions following the reading of the papers demonstrated the interest taken in the most excellent program rendered.

BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY

Professor Bernardus Brouwer of Amsterdam addressed the Boston Society of Psychiatry and Neurology on the evening of January 12 at the

Boston Medical Library. In the absence of Dr. W. J. Mixter, Dr. J. B. Ayer presided, and following the election of officers, Dr. E. A. Abbot assumed the chair and introduced the speaker. Dr. Brouwer chose as his subject "Centrifugal Influence on Sensory Centers in the Brain."

The speaker showed diagrams of the visual tracts, which illustrated that part of the visual field is seen separately by only one eye. The fibers from the retina proceed backwards and some go to the external geniculate body while the remaining portion terminates in the calcarine part of the occipital lobe. There is also a tract from the calcarine fissure back to the external geniculate body, and it is with this group of fibers that Dr. Brouwer has been particularly interested in his experiments. By injuring the calcarine cortex in rabbits, one is able to follow the degenerated fibers back to the thalamus. These fibers proceed in the inner layer of the optic radiation, and the frontal part of the calcarine cortex is connected with the thalamus near the frontal part of the external geniculate body. The idea that immediately arises from this fact is that the thalamus is a reflex center upon which the calcarine cortex exerts a certain influence.

Similar experiments have been carried on with the acoustic nerve, and its relays to the temporal lobe as well as the thalamus and the connecting fibers with the sensory cortex. Removal of the auditory portion of the temporal lobe leads to degeneration of tracts to the internal geniculate body.

Dr. Brouwer discussed in detail the evolution of the thalamus and its various nuclei and their relative importance in the sensory experiences of man. He stated that the thalamus is a highly elaborate station for evaluating stimuli. Extirpation experiments with the sensory cortex in animals have demonstrated a degeneration of fibers leading to the thalamus. The significance of this from the psychological standpoint is great as pointed out in the discussion which followed.

Contrary to the general opinion, the speaker stated that the pyramidal tracts do not terminate wholly about the anterior horn cells, but the greater part end at the base of the posterior horns, where new relays are formed to the anterior horn cells. The ventral part of the pyramidal tracts probably innervates trunk musculature. In conclusion Dr. Brouwer showed some lantern slides, and passed around a group of glass models dealing particularly with lesions in the thalamus following injury to the sensory cortex in monkeys. An interesting discussion followed the address.

NEW ENGLAND HEART ASSOCIATION

The next meeting of the New England Heart Association will be held Wednesday, February 8, at four-thirty P.M., in the John Ware Hall at the Boston Medical Library. The subject of this meeting will be "Peripheral Vascular Disease Exclusive of Raynaud's Disease."

1. Medical Aspects. Dr. Soma Weiss.
2. Surgical Aspects. Dr. Arthur Allen.
3. Pathological Aspects. Dr. Tracy B. Mallory.
4. Discussion will be opened by Dr. John Homans and Dr. Reginald Smithwick.

GREATER BOSTON MEDICAL SOCIETY

There will be a joint meeting of the Greater Boston Medical Society on Tuesday, February 7, 1933, at 8:15 P. M., at the Beth Israel Hospital.

PROGRAM

Symposium on Psychoneurosis

1. The Psychoanalyst's Standpoint. Dr. Hans Sachs, Vienna.
2. The Internist's Standpoint. Dr. Joseph H. Pratt, Boston.
3. The Neurologist's Standpoint. Dr. A. Myerson, Boston.

Discussion: Dr. Harry C. Solomon.

Physicians and students are cordially invited.

BERNARD I. GOLDBERG, M.D., *Secretary.*

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital Amphitheatre (Van Dyke Street entrance), Tuesday evening, February 14, at 8:15 o'clock.

PROGRAM

Presentation of Cases.

1. The Effect of Epinephrine on the Cardiac Mechanism in Experimental Hyper- and Hypo-Thyroidism.
   Minimal Toxic and Lethal Dosage of Digitalis in Experimental Hyper- and Hypo-Thyroidism. By Dr. H. G. Hahn.
2. A Follow-up Study of Sixty-nine Patients with Hyperthyroidism and Significant Heart Disease. By Dr. S. A. Levine.

JOHN HOMANS, M.D., *Secretary.*

MASSACHUSETTS TUBERCULOSIS LEAGUE

Dr. George H. Bigelow, State Commissioner of Public Health, will speak on "The Report of the Committee on the Costs of Medical Care" at the Semi-Annual Meeting of the Massachusetts Tuberculosis League on Monday, February 6, at Hotel Statler, Boston.

Dr. Walter P. Bowers, Managing Editor of the *New England Journal of Medicine*, will also discuss the subject.

Both Dr. Bigelow and Dr. Bowers were members of the Committee.

The meeting will be held in Parlor D on the Mezzanine Floor of the Statler beginning at 3:00 o'clock. It will be open not only to members of the

State Tuberculosis League but to all persons interested in public health.

Dr. Frederick T. Lord, President of the League, will preside.

FRACTURE MEETING

There will be a conference under the auspices of the Fracture Service of the Massachusetts General Hospital, Friday evening, February 3, at 8:00 o'clock, in the Lower Out-Patient Amphitheatre.

SUBJECTS

Fractures of Ribs, Dr. Balch; Fractures of Upper End of Radius, Dr. S. G. Jones; Fractures of Phalanges and Metacarpals, Dr. Marble; Dislocations of the Elbow, Dr. Harmer.

House officers, students and visitors welcome.

PHILIP D. WILSON, M.D., *Associate Chief.*

WILLIAM HARVEY SOCIETY

The next meeting of the William Harvey Society will be held Friday, February 10, at 8:00 P.M., at the Beth Israel Hospital, Boston.

Speaker: Dr. Lawrason Brown, Trudeau Sanatorium, Saranac Lake, N. Y.

Subject: "The Influence of Boston on Tuberculosis."

Chairman: Joseph Hersey Pratt, Professor of Clinical Medicine, Tufts College Medical School.

The annual Tufts College Medical School Alumni Dinner will be held at the University Club, Monday, February 20, at 6:30 P.M.

WORCESTER DISTRICT MEDICAL SOCIETY

The next meeting of the Worcester District Medical Society will be held at the Worcester State Hospital, Belmont Street, Worcester, Mass., Wednesday evening, February 8, 1933.

PROGRAM

Supper: 6:30 P.M. (Complimentary by Worcester State Hospital.)

7:45 P. M. The Scientific Program for this meeting will consist of the showing of the moving picture entitled "Divorce in the Family" with pertinent mental hygiene remarks exemplified by this picture by Dr. Samuel Hartwell of the Staff of the Hospital and Director of the Worcester Child Guidance Clinic.

EDWIN R. LEIB, M.D., *President,*
ERWIN C. MILLER, M.D., *Secretary.*

SOCIETY MEETINGS
CONGRESSES AND CONFERENCES

February 3—Fracture meeting (Massachusetts General Hospital). See notice elsewhere on this page.

February 3—A Review of the Literature of Diabetes for 1932. See page 233, issue of January 26.

February 5 - March 26—Harvard University. Free Public Lectures on Medical Subjects. See page 280.

February 6-10—The American College of Physicians. See page 765, issue of October 27.

February 6—Massachusetts Tuberculosis League. See page 289.

February 7—Lawrence Cancer Clinic. See page 279.

February 7—Greater Boston Medical Society. See page 289.

February 8—New England Heart Association. See page 289.

February 8—The New England Dermatological Society. See notice on page 174, issue of January 19.

February 9—Clinics in Medicine at Peter Bent Brigham Hospital. See page 279.

February 10—William Harvey Society. See notice elsewhere on this page.

February 14—Harvard Medical Society. See page 289.

February 15—New England Physical Therapy Society. Boston Square and Compass Club, 8 P.M.

February 17 and 18—The New England Hospital Association. See notice on page 911, issue of November 17.

February 18—American Academy of Physical Therapy. Hotel Statler, 2 P.M. Detailed notice will appear in next week's issue.

February 20—The annual Tufts Medical School Alumni Dinner will be held at the University Club at 6:30 P.M.

April 1 and June 13—The American Board of Obstetrics and Gynecology. See page 233, issue of January 26.

DISTRICT MEDICAL SOCIETIES

ESSEX NORTH DISTRICT MEDICAL SOCIETY

May 3—Wednesday, Annual Meeting. Program to be announced.

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

Tentative Program

Wednesday, March 8, 1933—Lynn Hospital. Clinic 5 P. M. Dinner 7 P. M. Speaker: Dr. Soma Weiss, Boston City Hospital. Subject: Arterial Hypertension.

Wednesday, April 5, 1933—Essex Sanatorium, Middleton. Clinic 5 P.M. Dinner 7 P.M. Speaker: Dr. Wilson G. Smillie, Professor of Public Health Administration, School of Public Health, Harvard University. Subject: Common Colds.

Thursday, May 4, 1933—Censors' Meeting, Salem Hospital. 3:30 P. M.

Tuesday, May 9, 1933—Annual Meeting. Salem Country Club, Forest Street, Peabody. Golf in afternoon; greens fee $2.00. Dinner at 7 P. M. Speaker: Dr. George Burgess Magrath. Subject to be announced later. Ladies invited.

R. E. STONE, M.D., Secretary.

FRANKLIN DISTRICT MEDICAL SOCIETY

Meetings will be held at the Weldon in Greenfield on the second Tuesday of March and May.

CHARLES MOLINE, Secretary.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

The program of the Middlesex East District Medical Society for the coming year is as follows:

March 15 at Melrose.

May, at the Meadowbrook Club, Reading.

ALLAN R. CUNNINGHAM, Secretary.

NORFOLK DISTRICT MEDICAL SOCIETY

February 28, 1933—Time and place to be announced. "The Diagnosis and Treatment of Anemia," by Dr. William P. Murphy.

March 28, 1933—Time, place and subject to be announced. Speaker will be Dr. J. P. O'Hare.

May—Annual Meeting. Time, place and subject to be announced.

FRANK S. CRUICKSHANK, M.D., Secretary.
1695 Beacon Street, Brookline.

SUFFOLK DISTRICT MEDICAL SOCIETY

Wednesdays at 8:15 P. M.

March 29, 1933—Clinical Program, Massachusetts General Hospital.

April 26, 1933—Annual Meeting. Election of Officers. Scientific Program—Titles and speakers to be announced later.

The Medical Profession is cordially invited to attend these meetings.

WILLIAM H. ROBEY, M.D., President,
LELAND S. McKITTRICK, M.D., Secretary.

WORCESTER DISTRICT MEDICAL SOCIETY

Wednesday, February 8—See notice elsewhere on this page.

Wednesday, March 8—Dinner and scientific program at the Memorial Hospital, Worcester. Program to be announced later.

Wednesday, April 12—Dinner and scientific meeting at the Rutland State Hospital. Scientific program to be announced later.

Wednesday, May 10—The Annual Meeting. Place and program to be announced later.

ERWIN C. MILLER, Secretary.

BOOK REVIEW

Public Health in New York State. Report of the New York State Health Commission to His Excellency, The Honorable Franklin D. Roosevelt, Governor of the State of New York. Published by the State of New York, Department of Health. Albany, 1932.

This book of 500 pages presents the results of investigations and the recommendations of a Commission appointed by Governor Roosevelt on May 1, 1930. The Governor gives the following reasons for the creation of the Commission: "Since 1913, there have been only piecemeal amendments to the Public Health Law, having to do with the detail of its administration. The rapid strides in the science of medicine and public health, however, and the experience we have gained in public health administration, convinced me, in 1930, that it was time to make another comprehensive survey of the subject of public health as a governmental function, state and local."

The Commission was composed of the following persons, prominent by reason of their identification with various welfare movements:

Livingston Farrand, Chairman; Thomas Parran, Jr., Secretary; George W. Cottis, Simon Flexner, Homer Folks, Edward L. Keyes, John A. Kingsbury, Agnes Leach, Henry Morgenthau, Matthias Nicoll, Jr., John M. O'Hanlon, William H. Ross, Katharine Tucker, and Linsly R. Williams.

Each of the following-named subjects is treated in a separate chapter, at the conclusion of which the Commission's recommendations appear: State Health Organization, Local Health Service, Public Health Personnel, Public Health Nursing, Control of Tuberculosis, Social Hygiene, Maternal and Infant Hygiene, School Hygiene, Care of Crippled Children, Dental Hygiene, Mental Hygiene, Industrial Hygiene, Cancer, Communicable Disease Control, Public Health Laboratory Service, Sanitation.

As the official administrative organization and methods of procedure which obtain in New York State are in the main practically the same as found today, in other states which have likewise been liberal in appropriations for public health purposes, the Commission's recommendations have more than a local interest and application. For the most part, these recommendations are of the "what ought to be" kind, couched in language calculated to secure for them the approval of everybody.

The most important constructive recommendation is that the political organization of the county should be expanded to displace the town as the executive unit in public health administration. The Commission admits that lack of centralized executive authority and other features of county government to be found in New York (and other Northern States) place obstacles in the way of the success of this plan, but believes that with the specific recommendations which the Commission makes in this connection the scheme can be put into successful operation. In the reviewer's opinion, the practicability of this recommendation has already been adequately demonstrated.

Better training for public health officials and other employees is stressed but there is no mention of the importance of personality in accomplishing results in dealing with the public and with subordinates. There is no intimation of desirability of apprenticeship on the job and promotion. Apparently, a preference is indicated for the instruction of health officers in special schools. There is nothing in the Commission's recommendations which gives assurance that a future public health officer or nurse who goes officially to release a quarantined scarlet fever case will be any better able to examine a nose and throat or be any more familiar with the normal mucous membrane of either than the average health department employee who releases scarlet fever cases at present.

In the Commission's report one finds no enunciation of the sound principle that an official in a position of executive responsibility with duties prescribed by law should have a voice in the selection of his own subordinates.

The Commission would extend the present powers of the State Public Health Council to prescribe the qualifications and determine the fitness of all persons for engaging in public health work. It would appear that the present jurisdiction of the Council with respect to this matter has proved reasonably satisfactory in New York State, but it does not follow that the idea would be equally successful everywhere. The history of Public Health Councils shows that appointments to a Council from among qualified persons are made for political considerations. We are therefore trusting in improvement of the capabilities of the health officers by taking dictation in the matter of their selection away from one kind of politicians and putting it into the hands of another.

The conscientious local public health official who is striving today to apply his reduced appropriations where they can accomplish the most in the way of tangible public benefit will find no help from the Commission's Report. Except for its recommendation of a county organization for local executive purposes the report is a plea for larger appropriations, for more permanent "full time" public health jobs and bigger salaries. The Commission meets the idea put forth by the late Dr. Biggs that public health is a purchasable commodity and then "goes him one better" by assuming that the more a community spends on public health officials the better its health will be.

One who believes that public health should be regarded as a business proposition rather than a job producing affair will be disappointed in the failure of the Commission to attempt a critical appraisal of the value of certain expensive public health "activities". Instead, one finds virtually an endorsement of the popular idea that any project with a laudable purpose justifies the expenditure of

public funds. The inability of the ordinary small town to maintain an elaborate public health organization is too obvious to be ignored but the resources of the state and federal government are apparently regarded as inexhaustible.

In the Commission's report, one finds the presumption that a statistical decrease in the death-rate from various causes during the last fifty years is attributable in every instance to organized human efforts to prevent disease. It has been repeatedly demonstrated that a general death-rate may be reduced by a pure public water supply; that infant mortality can be cut in half by the pasteurization of milk and intestinal infections at all ages reduced by the suppression of flies, but such demonstrations cannot serve as an excuse for ignoring the evidence that the gradual decrease in mortality, for example, from diphtheria, scarlet fever and tuberculosis during the last seventy years has been due to the failure and not to the success of human efforts, to prevent the distribution of the causative agents of these diseases.

The spread of a communicable disease cannot be stopped by quarantining "reported" cases after they have infected everybody they are likely to infect. The present high percentage of natural immunes to diphtheria and scarlet fever among children in our larger centers of population and the practical universality of tuberculous infection disclosed by autopsies show that nature, not man, deserves the credit for reducing mortality from these diseases. It hardly furnishes an occasion to point with pride to the small mortality from scarlet fever when the Dick test indicates that 88% of a group of its young children in the locality have acquired a natural immunity to the disease.

One interested in the discovery of nature's secret of immunizing against tuberculosis will find little encouragement in the Commission's cautious evasive reference to the work of Calmette and his associates during the last twenty years.

In its reference to maternal mortality the Commission is bolder. The obscure biological factors involved are disregarded. We read, "it is evident that the quality of medical care is the most important single factor in material mortality," — a deficiency which presumably may be met by adequate official supervision.

Child welfare activities receive strong endorsement. There is no intimation that the supposed needs of the child are being overcapitalized to maintain projects to overcome hereditary deficiencies, the only remedy for which is a matter of eugenics. There is no mention of the need of protecting the normal child against the kind of official health education which teaches parents that spinach, carrots, *whole* wheat, orange juice by the pint, cow's milk by the quart, and abstinence from useful employment until 18 years old offer the assurance of the highest attainable adult physical development and nervous and moral stability.

Though the rose may now be called by other names, *pauperism* engendered by half-baked projects for the "promotion of public welfare," put through to a great extent by persons who find lucrative employment or congenial avocations in carrying such projects on, have created a cost of government which has outrun the wealth producing ability of the nation to sustain it. "Public welfare" is at present being "promoted" by mortgaging future production.

The amount of the earnings of the people which have been wasted in futile public health schemes is small in comparison with the sums which have been squandered in other ways, but this fact will not affect the prospect which municipalities are now facing of having less money to spend for public health purposes.

"Local health officers" are accustomed to being discredited. They know what it is to suffer in reputation for their failure to secure bigger appropriations to create more jobs, but until radical changes of a fundamental character are made in the form of government which obtains in most of our states the local public health executive will have to continue to do the actual work in protecting the health of the public and attend to its dirty, unpleasant tasks, including the enforcement of laws. The local public health executive holds a position of definite official responsibility for his acts and is faced today as never before with a critical attitude on the part of those who are able to think.

Local public health officials are everywhere looking for help to enable them to decide how reduced appropriations may be applied so as to count the most in benefit to the public rather than in the interest of those who derive incomes from carrying the work on. More than all, they need moral support for unpopular decisions which they must necessarily make.

It is, therefore, to be regretted that this Commission of our "Empire State," created "in order that scientific knowledge might be utilized more fully for the prevention of disease," should have been content to ascribe certain favorable statistical tendencies with respect to death and disease to the direct or indirect influence of customary official activities. One cannot help feeling that the Commission missed an unusual opportunity at this time by failing to utilize its resources and lend the prestige of the names of its members to a critical businesslike appraisal of popularly approved procedures for the promotion of public health; that they neglected to make any serious effort to determine what procedures are actually producing enough in the way of definite tangible results to justify their cost. Such an investigation would, of course, have to include a critical study of the reliability of the sources of vital statistics as well as methods of compilation, and an unprejudiced consideration of the obtrusive evidence that, in some instances, disease or death is decreasing not because of, but in spite of, human efforts to bring this about.